European Union Aviation Safety Agency

Comment-Response Document (CRD) 2022-02

RELATED NPA: 2022-02 (RMT.0624)

30.3.2023

Table of contents

1. Summary of the outcome of the consultation

Please refer to *Section 2.4 What are the stakeholders' views — outcome of the consultation* of the Explanatory Note to ED Decision 2023/005/R.

2. Individual comments (and responses)

In responding to the comments, the following terminology is applied to attest EASA's position:

(a) **Accepted** — EASA agrees with the comment and any proposed change is incorporated into the text.

(b) **Partially accepted** — EASA either partially agrees with the comment or agrees with it but the proposed change is partially incorporated into the text.

(c) **Noted** — EASA acknowledges the comment, but no change to the text is considered necessary.

(d) **Not accepted** — EASA does not agree with the comment or proposed change.

2.1. CRD table of comments and responses

(General Comments)	-

comment	13	comment by: *Ryanair*
	Ryanair Group of Airlines supports Remote Aerodrome concept with the caveat that there is rigorous cost control applied to potentially a never ending pipeline of technical improvements enhancing safety	
response	Noted	

comment	17	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*
	The Swedish Transport Agency overall general comment regarding this NPA is that it´s overall good and give more comprehensive guidance than the existing GM.	

There are a need for further coverage of the operational aspects, for more clear guidance for aerodrome operators, ATS service provider and air space users, and for the NAA:s to comply with (EU)2017/373 ATM/ANS.OR.A.070
('A service provider shall have in place contingency plans for all the services it provides in the case of events which result in significant degradation or interruption of its operations.')
Therefore more clear guidance are needed for both redundancy contingency procedures within the technological infrastructure of the RTC as well as operational contingency procedures in case of degradation or interruption of the RTC operation. These procedures are to safety windup any planned and or primarily airborne aircraft that uses the RAATS aerodrome as a destination and or alternate aerodrome. This is especially important for air space users that uses a destination and alternate aerodrome served by the same RTC. Since the planned fuel for the flight can otherwise be insufficient according to the Fuel Policy (Fuel Scheme) requirements in (EU) 2012/965. These contingency procedures shall be easily accessible for the air space users and should be described in AIP according to (EU) 2017/ 373 Annex 6 (AIS), appendix 1, Part 3, AD.2.23 and displayed on instrument approach charts, or any other appropriate means within the AIP.

response	Noted
	The issue is will be reviewed in the context of the next update of Regulation (EU) 2017/373 and its associated AMC & GM.

1. About this NPA   p. 3

comment	*37* comment by: *IFATCA*
	general comments on the IFATCA comments:
	IFATCA is global organization and it is in our view very important that EASA keeps aligned with the ICAO requirements in order that we do not create a two tier system when it comes to remote tower. Some of the operational practices are not the same around the world and it would make it easier that we have a common denominator to not create a fragmented system at the global level.
response	Noted

2.1. Why we need to amend the rules - issue/rationale   p. 5

comment	*42* comment by: *European Cockpit Association*
	ECA is of the opinion that RAATS introduces new vulnerabilities that are not yet mitigated through regulation. It is thereby clear to ECA that RAATS will potentially provide a lower level of safety than conventional ATS provision.
	ECA is also concerned that airspace users are, and will be, negatively affected by RAATS. Extra fuel burn, delays, and new communication challenges.
response	Noted
	The statement is not supported by concrete supporting elements. The GM is aimed to help stakeholders to implement the existing European aviation legislation that clearly stipulates that following any change in the ATM system, the safety criteria shall ensure that the change does not create an unacceptable risk to the safety of the service.

2.3. How we want to achieve it - overview of the proposed amendments   p. 6

comment	*1* comment by: *GdF*
	"EASA still considers that it is easier for those involved in the implementation of remote aerodrome ATS to have a single source of information encompassing all the aspects together, rather than specific AMC or GM to higher-level provisions/regulations, which would render the overall application complex."

EASA does a great job creating the easy access documents for many complex regulations. This proves that higher-level provisions can be contained in a single source, and therefore rendering the overall application not overly complex.

So, we do not agree with the assumption, because EASA does a good job with easy access documents.

response	Noted

comment	*2*	comment by: *GdF*

Did you publish the results of the mentioned survey? If not, would it be possible to do so, please?

response	Noted
	The survey was undertaken with the aim of gathering information on the implementation of remote aerodrome ATS. The results of the survey were used as an internal working document by EASA and RMG.0624.

comment	*11*	comment by: *GdF*

"The current text of Chapter 9. Aeronautical information products and services is replaced with new text providing guidance on the implementation, in the context of remote towers, of the new Part-AIS requirements introduced through Regulation (EU) 2020/469 in the ATM/ANS Common Requirements. During the development of the RMT activities, it was underlined that Appendix 1 — PART 3 — AERODROMES — AD 2.23 Additional Information in Part-AIS includes a requirement for the aircrew with r0e0gard to the selection of the alternate aerodrome, in circumstances where both the destination and the selected alternate aerodrome are served by the same RTC. EASA acknowledges that such a requirement is misplaced as it addresses aircraft operators directly; also its substance might need to be revised, as it currently does not potentially allow flight operations in areas where all aerodromes are served by the same centre. Another aspect to be considered is the existence of contingency procedures established by the ATS provider concerned, which might mitigate the issue. EASA is evaluating a revision of the affected rules (Part-ATS and Part-AIS of the ATM/ANS Common Requirements Regulation and Regulation (EU) No 965/201212) to address the issue and ensure the necessary clarity, legal certainty and assurance of the safety level. In support to such a revision, EASA wishes to get stakeholders' feedback on the subject."

Yes, EASA should take steps to mitigate the issue. It has to be ensured that one or more alternate aerodromes are always available which are operated in a conventional way or from an RTC using different hard- and software. Proper requirements should be developed and enacted.

response	Noted
	EASA is aware of the issue and the mitigation measures are ongoing. The resolution is beyond GM level as it affects hard law.
	See also the response to comment No 17.

comment	12	comment by: *HungaroControl*
	In our opinion the guidance given in Section 7.1.4 is clear and sufficient. In order to make sure there is no room for misunderstanding, we suggest to include the definition of „runway safety areas" in the Definitions chapter.	
response	Not accepted Only definitions specific to remote aerodrome ATS are provided in the GM.	

comment	14	comment by: *Avinor*
	Comment to 2.3 - Question to wether guidance given in Section 7.1.4 is consider sufficient: We consider the guidance on Equipment placement constraints to be sufficient **Justification:** The response is based on our experience with placement of equipment for remote services on 11 aerodromes so far.	
response	Noted	

comment	15	comment by: *Avinor*
	Comment to 2.3 - EASA's request for stakeholders' feedback on Chapter 9: We recognise that the misplacement of requirements regarding alternate aerodromes in Part-AIS of the ATM/ANS Common Requirements Regulation was indeed unfortunate, and therefore careful consideration should be given when adressing this topic further. We suggest that the operations of a Remote Tower centre should be treated like an ACC or APP when considering the service to multiple aerodromes from one centre in a contingency perspective, and also when considering requirements and/or guidance to airspace users for the planning of alternate aerodromes.	
response	Noted See the response to comment No 11.	

comment	18	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*
	2.3 How we want to achieve it - overview of the proposed amendments, pg 9 **QUESTION: Is the guidance given in Section 7.1.4 considered sufficient? If not, which aspects should be included and subject to an extended elaboration?** We agree the text in section 7.1.4 correctly describe equipment placement constraints and do not need any adjustment.	
response	Noted	

comment	19	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

2.3. How we want to achieve it — overview of the proposed amendments, pg 10

We support the revision of the affected rules (Part-ATS and Part-AIS of the ATM/ANS Common Requirements Regulation and Regulation (EU) No 965/2012) to address the issue and ensure the necessary clarity, legal certainty and assurance of the safety level. There is a lack of addressing the operational aspects of remote tower in regards of the flight planning requirements that are not addressed in (EU) 965/2012.

response	Noted

comment	38	comment by: *DTA/MCU*

With reference to question "EASA is evaluating a revision of the affected rules (Part-ATS and Part-AIS of the ATM/ANS Common Requirements Regulation and Regulation (EU) No 965/201212) to address the issue and ensure the necessary clarity, legal certainty and assurance of the safety level. In support to such a revision, **EASA wishes to get stakeholders' feedback on the subject.**"

Comment: "The French competent safety authority (DSAC) would like to provide the following feedback.
The current regulations for ATS providers (373) already require to deal with the risk related to interdependencies (e.g. failure of a central approach, a Regional Control Centre or a regional snowstorm situation) and establishes mechanisms to mitigate it (e.g. safety studies).
Therefore, we would prefer not to produce any AIROPS specific requirements that would add disproportionate complexity. Nevertheless, it seems useful to develop appropriate material in ATS regulation, if necessary, to ensure that the interdependency risks are considered in safety studies together with contingencies issues as proposed in this amendment. In particular, the level of reliability and resilience of Remote tower control centers should be sufficient to avoid any potential replanning of flights when that control center manage more than one remote tower. If it is deemed necessary, additional measures could be proposed regarding their implementation and technical architecture (ex : in section 5.8 and 8 of NPA 2022-02(B)) . Indeed, remote ATS should not negatively affect air operations as far as practicable. The mitigation technique resulting from the ATS safety study to deal with the interdependency risk of RTCs should not conclude that it's the AO responsibility to take additional fuel on flights because it would precisely negatively impact:
- air operators (heavier aircrafts, increase of fuel consumption, extra costs)
- environmental footprint (increase consumption for all flights)."

response	Noted

comment	39	comment by: *DTA/MCU*

With reference to: "QUESTION: Is the guidance given in Section 7.1.4 considered sufficient? If not, which aspects should be included and subject to an extended elaboration?"

Comment: We suggest to add the following paragraph to 7.1.4 :
Annex 14 vol I 6.1.1 (CS ADR-DSN.Q.840 regarding aerodromes in the scope of R UE 2028/1139) requires objects within the lateral boundaries of the obstacle limitation surfaces to be marked and/or lighted.

response	Accepted
	The reference has been added.

comment	*40*	comment by: *DTA/MCU*

As reference to: "QUESTION: Is the guidance given in Section 7.1.4 considered sufficient? If not, which aspects should be included and subject to an extended elaboration?"

Comment: We suggest to add the following paragraph to 7.1.4 pertaining to the ILS critical/sensitive areas should be added as location of cameras should take into account the risk of disruption of ILS signals:
« when deciding on the most appropriate location, account should be taken to ensure the clear of ILS critical/sensitive areas where appropriate. »

response	Accepted
	The text has been updated.

comment	*41*	comment by: *European Cockpit Association*

ECA initially welcomed Reg. (EU) 2017/373 (2020/469) Annex VI Part-AIS Appendix 1 – PART 3 – AERODROMES – AD 2.23 (5), as it appears to align with our view on a reasonable policy for alternate selection in a remote aerodrome ATS (RAATS) environment with a single RTC serving remote ATS units at several aerodromes. We agree that such a requirement must be directly reflected in Reg. (EU) 965/2012 as it applies directly to airspace users.
Concurrently, availability of suitable alternates (i.e. aerodromes with independent ATS) can only be assured by Member States and ATS providers. Based on e.g. ICAO Annex 6 Part I Section 4.3.4, Annex 11 Section 2.32, Doc 9976, AMC1 CAT.OP.MPA.182 (PBN and alt. selection), and ATM/ANS.OR.A.070; our understanding is that a single RTC serving remote ATS units at several aerodromes should be considered as a potential single point of failure due to the significant interdependencies it creates. This requires sufficient contingency measures to ensure safety in case of an RTC failure affecting all dependent ATS units at the same time, especially if several of these are located in the same region and would otherwise constitute independent and feasible alternates. In this event, IFR traffic that is serving a destination with remote ATS provision must be able to rely on independent/protected alternates and/or other contingency arrangements to ensure safe recovery. ECA supports a regulatory revision that will take this into account.

Reg. (EU) 2017/373 Annex VI Part-AIS Appendix 1 – PART 3 – AERODROMES – AD 2.23 (5) should be transferred to Reg. (EU) 965/2012 as a conditional flight planning requirement. Proposed wording: "Airspace users shall not plan an aerodrome as

alternate when serviced by the same remote tower centre as the destination aerodrome, unless adequate contingency procedures are established." Additional AMC and GM should be added as appropriate. Reg. (EU) 2017/373 should mandate a safety risk assessment proving that RAATS units served by a single RTC offer at least the same level of safety as if they were individually controlled by a manned ATS unit on site (re. Sections 6.1.1 and 6.2.1).

response	Noted
	See the response to comment No 11.

2.4. Stakeholders' views on unit endorsements for remote aerodrome air traffic services provision	p. 10

comment	*3*	comment by: *GdF*
	"According to AMC1 ATCO.B.020(a) related to Regulation (EU) 2015/340, each aerodrome for which aerodrome ATC service is provided from an RTC, should constitute its own unit endorsement. Considering the establishment of RTCs and multiple mode of operation, EASA is interested in the stakeholders' feedback on the following:	
	1. Should the remote centre location indicator be used in the unit endorsement? Yes.	
	2. Should the privilege to provide services in multiple mode of operation be indicated by the unit endorsement? Yes.	
	3. Should the combination of different aerodromes attended simultaneously from one remote tower module be indicated in the unit endorsement(s)? Yes.	
	4. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes authorise the holder to provide air traffic control services for any combination of the aerodromes included in that unit endorsement? No, only specified combinations demonstrated to be combined safely in a safety assessment.	
	5. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes also authorise the holder to provide air traffic control services in single mode for any of the aerodromes included in that unit endorsement?" Yes.	

response	Noted
	The comment will be taken into account in the context of the activities of RMT.0668.

comment	*16*	comment by: *Avinor*
	Comment to 2.4 - Specific questions on unit endorsements for remote aerodrome air traffic services provision:	
	We have the following view on the 5 questions given	

1. No - the remote centre location indicator should not be used in the unit endorsement.

2. No - the privilege to provide services in multiple mode of operation should not be indicated by the unit endorsement.

3. No - the combination of different aerodromes attended simultaneously from one remote tower module should not be indicated in the unit endorsement(s).

4. No - a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes should not authorise the holder to provide air traffic control services for any combination of the aerodromes included in that unit endorsement.

5. Yes - a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes should also authorise the holder to provide air traffic control services in single mode for any of the aerodromes included in that unit endorsement.

response	Noted See the response to comment No 3.

comment	20	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

2.4. Stakeholders' views on unit endorsements for remote aerodrome air traffic services provision, pg 10-11

Multiple mode of operation is a new area with several attributes that are new to the industry. We have formulated our answers regarding multiple based of a few baselines.

* The STA considers multiple mode to be a separate entity from single mode of operation. Multiple mode has several attributes that are different from single mode and our comments are based of that.

* Regulation has to be clear and unambiguous, therefore the proposals are sometimes more complicated to reduce ambiguity. It's important that the application is consistent throughout the union airspace and that requires specific regulation.

* As multiple mode is used and experience is gathered more fine-tuning can be made, but at present time the regulatory approach needs to be more conservative due to the lack of real experience with the concept.

response	Noted See the response to comment No 3.

comment	21	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

2.4. Stakeholders' views on unit endorsements for remote aerodrome air traffic services provision, pg 11, Q1

This can be done in several ways, our suggestion is that for single mode operation the RTC-indicator is not included (in our experience the airport ICAO-code is sufficient) but for multiple mode it could be included. This depends on how the licensing for remote is regulated though.

response	Noted See the response to comment No 3.

comment	22	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

2.4. Stakeholders' views on unit endorsements for remote aerodrome air traffic services provision, pg 11, Q2

Yes. Multiple mode hold several different challenges compared to single mode. By indicating multiple specifically in the license it is clarified that multiple mode requires more in terms of training and competency compared to single mode.

response	Noted See the response to comment No 3.

comment	23	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

2.4. Stakeholders' views on unit endorsements for remote aerodrome air traffic services provision, pg 11, Q3

We are not opposed to doing this, but it is not strictly necessary. The complexity from doing this is probably outweighing the benefit. If the license has to include all possible multiple combinations this would be highly complicated (consider an RTC with 4 airports, this would lead to potentially 11 multiple combinations). We therefore suggest that multiple is indicated by a separate endorsement (for example the RTC ICAO-code) but not for each airport combination. A multiple endorsement would then entitle the holder to provide multiple mode for those airports in the RTC where they hold single airport endorsements and the local regulations allow for this. For example:

• ATCO A has endorsements for airport A, airport B, and airport C, They can then provide single service at these three airports.
• ATCO B has endorsements for airport A and airport B, and they have the multiple endorsement for the RTC. They can then provide:
o Single service at airport A
o Single service at airport B
o Multiple service for airports A and B combined.
• ATCO C has endorsements for airport A, airport B, and airport C. They also hold the multiple endorsement for the RTC, they can then provide:
o Single service at airport A
o Single service at airport B
o Single service at airport C

o Multiple service for airports A and B combined
o Multiple service for airports B and C combined
o Multiple service for airports A and C combined
o Multiple service for airports A, B, and C combined

An alternative suggestion would be to include multiple mode as its own rating endorsement under the ADI rating. This however requires more analysis and work if it's to be introduced.

response	Noted
	See the response to comment No 3.

comment	*24*	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

2.4. Stakeholders' views on unit endorsements for remote aerodrome air traffic services provision, pg 11, Q4

We suggest this is regulated at local level (for example in a unit operating manual or similar) rather than the license. Regulating this in the license would require a high level of administration which seems to provide little increased benefit. If the multiple mode provision has its own unit endorsement it already holds a specific status.

response	Noted
	See the response to comment No 3.

comment	*25*	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

2.4. Stakeholders' views on unit endorsements for remote aerodrome air traffic services provision, pg 11, Q5

In our proposed solution this is not a factor, as every ATCO has to hold the single endorsements for airports before they can provide multiple mode. We consider this to be a better solution that is more in line with current practice (where each airport has to constitute its own unit endorsement in accordance with AMC1 ATCO.B.020(a)).

We believe each airport should be explicitly listed somewhere to maintain the principle that an airport is its own endorsement that need to be maintained. We see a risk that too much bundling of airports might lead to a degradation of competency standards for individual airports, which could lead to increased flight safety risk.

response	Noted
	See the response to comment No 3.

comment	*35*	comment by: *HungaroControl*

According to AMC1 ATCO.B.020(a) related to Regulation (EU) 2015/340, each aerodrome for which
aerodrome ATC service is provided from an RTC, should constitute its own unit endorsement.
Considering the establishment of RTCs and multiple mode of operation, EASA is interested in the
stakeholders' feedback on the following:

Should the remote centre location indicator be used in the unit endorsement?

Not. In our opinion it's not necessary to indicate in the licence that the service is provided from RTC.

According to Regulation (EU) 2015/340 APPENDICES TO ANNEX II APPENDIX 1 OF ANNEX II – Format for licence EASA Form 152 – Issue 1, table XIIa Ratings an endorsement with expiry dates, the first column, Unit (ICAO indicator) should express the location(s) of the aerodrome(s), for which unit endorsement(s) is (are) held.
Remote tower centre is not an independent aerodrome, it could have an ICAO location indicator only for communication purposes.

Should the privilege to provide services in multiple mode of operation be indicated by the unit endorsement?
Yes.
In the ATCO licence we suggest to indicate this privilege in the Sector/Position column in the same row of the unit (ICAO indicator) where multiple mode of operation is provided, or a separated new column should be created to indicate this privilege.

Should the combination of different aerodromes attended simultaneously from one remote tower module be indicated in the unit endorsement(s)?
Not necessary.
It could result in too many combinations in the licence. If there is any limitation in the simultaneous aerodrome combinations rather it should be determined in the RTC Supervisors sector configuration plan.

Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes authorise the holder to provide air traffic control services for any combination of the aerodromes included in that unit endorsement?
Yes.
If there is any limitation in the simultaneous aerodrome combinations rather it should be determined in the RTC Supervisors sector configuration plan.

Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes also authorise the holder to provide air traffic control services in single mode for any of the aerodromes included in that unit endorsement?

Yes. Each unit endorsement should authorize the holder to provide ATC services in each unit in single mode as well.

response	Noted
	See the response to comment No 3.

comment	*43*	comment by: *ENAIRE*

1. Should the remote centre location indicator be used in the unit endorsement?

Not necessarily, but it could be useful in the long term in case of RTCs allowed to provide remote aerodrome ATS as backup facilities to several aerodromes.
At least, the unit endorsement should include the aerodrome code and "remote" (or similar) to differentiate the privilege to provide remote ATS benefit from the RTC during the transition, for example.

2. Should the privilege to provide services in multiple mode of operation be indicated by the unit endorsement?

Not necessarily as a specific one. In the case of multiple mode for a group of aerodromes, the same unit endorsement should include all the aerodromes allowed to be grouped in multiple mode (e.g., AAAA + BBBB + CCCC). Thus, multiple mode remote ATS provision is implicit in the unit endorsement.

3. Should the combination of different aerodromes attended simultaneously from one remote tower module be indicated in the unit endorsement(s)?

No, for the sake of simplicity. In the case of multiple mode for a group of aerodromes, the same unit endorsement should include all the aerodromes allowed to be grouped in multiple mode (e.g., AAAA + BBBB + CCCC). Thus, single / multiple mode remote ATS provision to any combination of the aerodromes in the group is implicit in the unit endorsement. See question 4.

4. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes authorise the holder to provide air traffic control services for any combination of the aerodromes included in that unit endorsement?

Yes. Unit endorsement should include the group of aerodromes and the sector/positions. In the usual case, it is expected that all the aerodromes will be attended from a single position. In this case, any combination of those aerodromes should not be more complex than the combination of all of them. Thus, the unit endorsement for the group of aerodromes may also authorise the holder to provide remote aerodrome ATS to any combination included in the group of aerodromes. This includes the remote aerodrome ATS in single mode from a single position to any of the aerodromes included in that unit endorsement (see example 1, bellow). Only in case that the unit endorsement of any of the aerodromes may include the provision from more than one position (e.g. AIR, GMC), an additional

unit endorsement could be included in the license to allow the holder the privilege to provide the service from more than one position (i.e. under higher traffic demand/complexity), (see example 3, bellow).

Otherwise, it would be required to list all the possible combinations of the aerodrome, with the obvious redundancy. Furthermore, it is more evident at first sight if not all the possible combinations are allowed (see examples 2 and 3, bellow).

In any case, AMC1 ATCO.B.020(a) related to Regulation (EU) 2015/340 should be reviewed to clarify the unit endorsement for multiple mode remote ATS for a group of aerodromes.

Example 1

3 aerodromes (AAAA, BBBB, CCCC), all single position units (TWR)
In this case all three aerodromes could be grouped into a single position

Unit	Sector/position	comment
AAAA + BBBB + CCCC (remote)	TWR	Allows any combination from single position (AIR): AAAA + BBBB + CCCC, AAAA+BBBB, AAAA + CCCC, BBBB + CCCC, AAAA, BBBB, CCCC

Example 2

3 aerodromes (AAAA, BBBB, CCCC), all single position units (TWR)

In this case, not all three aerodromes could be grouped into a single position. BBBB and CCCC cannot be grouped in the multiple mode. For example, because of the traffic profile. The single mode remote ATS provision for BBBB and CCCC is included in the unit endorsement of the combinations. Thus, the single unit endorsements would not be explicitly required.

Unit	Sector/position	comment
AAAA + BBBB (remote)	TWR	Allows any combination from single position (TWR): AAAA+BBBB, AAAA, BBBB
AAAA + CCCC (remote)	TWR	Allows any combination from single position (TWR): AAAA+CCCC, AAAA, CCCC

Example 3

3 aerodromes (AAAA, BBBB, CCCC)

BBBB, CCCC single position units (TWR)

AAAA unit up to 2 working positions (AIR, GMC)

In this case, 3 aerodromes could be grouped during low traffic periods (e.g. night time), and AAAA could be split during peak hours (e.g. day time).

Unit	Sector/position	comment
AAAA + BBBB + CCCC (remote)	TWR	Allows any combination from single position (TWR): AAAA + BBBB + CCCC, AAAA + BBBB, AAAA + CCCC, BBBB + CCCC, AAAA, BBBB, CCCC
AAAA	AIR GMC	Allows the ATS provision to AAAA from 2 working position

Example 1, all possible combination can be attended from one RTM, including A+B, A+C, B+C. Example 2, only the explicit combinations are allowed.

5. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes also authorise the holder to provide air traffic control services in single mode for any of the aerodromes included in that unit endorsement?

Yes, for the sake of simplicity. See question 4.

response

Noted

See the response to comment No 3.

comment | *47*   comment by: *European Transport Workers Federation - ETF*

1. Should the remote center location indicator be used in the unit endorsement? It may be so used but other options are also possible (especially when the number of aerodromes serviced from the RTC is high).
2. Should the privilege to provide services in multiple mode of operation be indicated by the unit endorsement? Yes, we also believe that any limitation to the grouping of aerodrome should appear clearly in the unit endorsement.

3. Should the combination of different aerodromes attended simultaneously from one remote tower module be indicated in the unit endorsement(s)? yes as mentioned before.

4. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes authorise the holder to provide air traffic control services for any combination of the aerodromes included in that unit endorsement? no we believe that it is too early to make sure that such restriction will not be required to ensure safe service provision, until then let's be specific.

5. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes also authorise the holder to provide air traffic control services in single mode for any of the aerodromes included in that unit endorsement? Yes but some restrictions may apply (especially on traffic levels)

response | Noted

See the response to comment No 3.

comment | *48*   comment by: *IATA*

To answer the questions raised in NPA (A) 2.4. Stakeholders' views on unit endorsements for remote aerodrome air traffic services provision:

1. Should the remote center location indicator be used in the unit endorsement? – It depends. If the official name of the Center includes location it should be used in the unit endorsement. The endorsement should indicate the official name of the Center. Ideally location indicator should not be used in the center name to avoid confusion

2. Should the privilege to provide services in multiple mode of operation be indicated by the unit endorsement? YES

3. Should the combination of different aerodromes attended simultaneously from one remote tower module be indicated in the unit endorsement(s)? YES

4. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes authorize the holder to provide air traffic control services for any combination of the aerodromes included in that unit endorsement? NO. Each combination should be indicated specifically, or the unit endorsement for each aerodrome should be indicated in addition to unit endorsement for the remote service provision in multiple mode. This is especially critical for mixed conventional and remote aerodrome ATS operations

5. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes also authorize the holder to provide air traffic control services in single mode for any of the aerodromes included in that unit endorsement? NO. The unit endorsement for each aerodrome should be indicated in addition to unit endorsement for the remote service

provision in multiple mode. This is especially critical for mixed conventional and remote aerodrome ATS operations

response	Noted
	See the response to comment No 3.

2.5. What are the expected benefits and drawbacks of the proposed amendments   p. 11

comment	*32*	comment by: *German NSA (BAF)*

Answers to question 1 to 5:

1: Yes, however, location indicators of the aerodrome(s) served still need to be included.
2: Not necessarily "indicated" but the working method (single and/or multiple mode) needs to be an integral part of the description of the unit endorsement(s)
3: Cf. answer to question 2
4: Cf. answer to question 2
5: Normally single mode is part of the training as well, so yes, however an even distribution of exercising all (combinations of) unit endorsements should be ensured – cf. also the comment on minimum hours to Part B of the NPA

response	Noted
	See the response to comment No 3.

comment	*36*	comment by: *IFATCA*

It is very good that this is entered into the guidance, but as the rollout of RT systems in Europe is progressed, this is too late for many fo the stakeholders.
1. Should the remote centre location indicator be used in the unit endorsement? No, if information in AIP is updated with the fact that ATS is serviced from an RTC.
2. Should the privilege to provide services in multiple mode of operation be indicated by the unit endorsement? Yes
3. Should the combination of different aerodromes attended simultaneously from one remote tower module be indicated in the unit endorsement(s)? No, if the unit endorsements are updated in the license that is sufficient.
4. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes authorise the holder to provide air traffic control services for any combination of the aerodromes included in that unit endorsement? Yes
5. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes also authorise the holder to provide air traffic control services in single mode for any of the aerodromes included in that unit endorsement? Yes

response	Noted

See the response to comment No 3.

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comment	*44*	comment by: *Norwegian Air Traffic Controller Association*

1. Should the remote centre location indicator be used in the unit endorsement?
No, if information in AIP is updated with the fact that ATS is serviced from an RTC.
2. Should the privilege to provide services in multiple mode of operation be indicated by the unit endorsement? Yes
3. Should the combination of different aerodromes attended simultaneously from one remote tower module be indicated in the unit endorsement(s)? No, if the unit endorsements are updated in the license that is sufficient.
4. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes authorise the holder to provide air traffic control services for any combination of the aerodromes included in that unit endorsement? Yes
5. Should a unit endorsement for the remote service provision in multiple mode of operation for a group of aerodromes also authorise the holder to provide air traffic control services in single mode for any of the aerodromes included in that unit endorsement? Yes

response	Noted

See the response to comment No 3.

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4. Impact assessment (IA)   p. 14

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comment	*45*	comment by: *European Transport Workers Federation - ETF*

Impact assessment - it is a shame that no impact assessment of the regulatory change was conducted especially as no assessment of operators' behaviour towards this regulatory approach, issuing only guidance material has been conducted. Are some parts of the guidance ignored by operators?
As a new way of providing ATS the impact assessment is: economically a +, safety should be an =, social impact is a – and environmental impact should be a small -.
Is the regulation proposed currently addressing safety of this new way to provide aerodrome ATS sufficiently? Perhaps so far yes, but as plans of ANSP to move to this technology develops, how long will it last?

response	Noted

EASA assessed that for this update of the document there was no need for a further impact assessment. This will be reassessed when the document is updated again based on the information at the time.

EASA continuously monitors the need for changes in the regulatory framework and, if required, will consider proposing stricter regulation in the future. For this project, guidance material was considered to be sufficient.

6.2. Related EASA decisions	p. 16

comment	*34*	comment by: *DTA/MCU*
	Decision 2014/013/R of the Executive Director of the European Aviation Safety Agency of 27 February 2014 adopting Certification Specifications and Guidance Material for Aerodromes Design 'CS-ADR-DSN - Initial issue'	
	to be replaced by the latest amendment:	
	Decision 2022/006/R of the Executive Director of the European Aviation Safety Agency of 25 February 2022 adopting Certification Specifications and Guidance Material for Aerodromes Design 'CS-ADR-DSN - Issue 6'	
response	Accepted	
	The reference has been updated.	

(General Comments)	-

comment	*95*	comment by: *Europe Air Sports*

Europe Air Sports (EAS) appreciates the opportunity to give our views on NPA 2022-02. As a general comment, we find the NPA to be comprehensive and timely.

Our major concern is the risk that a possible reduction of ATC hours of operation, caused by the switch to remote ATC services, would be followed by a reduction of aerodrome operating hours. This would seriously affect the accessibility for general and sports aviation to use these aerodromes - today it is common that the aerodrome is open for VFR (and sometimes also IFR) traffic outside of the ATC operating hours. EAS asks EASA to ensure aerodrome operating hours are not indiscriminately reduced.

Please find some additional comments in the following sections.

response

Noted.

EASA has neither the authority nor the intent to regulate opening hours of aerodromes. This is solely the (business) decision of aerodrome operators and/or ANSPs.

See response to comment No 254.

comment	*125*	comment by: *AOPA Sweden*

AOPA Sweden

22-07-27

Comments on NPA 2022-02

- A general problem with the system is the technical vulnerability. Suppose the cables for electricity and digital communication are cut at the RTC. As a result the communication between the airports would be closed. Even worse, a hostile hacker attack might destroy the whole system.

Also, a malfunction in the system could cause problems so the information given on the monitors to the personal at the RTC would be incorrect without the persons are aware of that. For example the weatherforecast could be wrong due to technical problems in the transmission or on the digital devices.

Hence, a reservesystem must be established were all towers involved are able to function independently from the others.

- Airports have various openinghours. The RTC must be open as long as all the other airports are open. Detriment to the accessability if all airports were to to close as soon as one tower closes.

On the contrary, AOPA belives that the arrangement with remote towers, should improve the possibility to have longer opening hours at the airports involved. If one tower is open, all the other towers might as well be open.

Fredrik Brandel
Member of the board
AOPA Sweden

response	Noted.
	Regarding opening hours, please refer to the response to comment No 95.
	Regarding system vulnerability, remote aerodrome ATS shall be treated as any other system intended for ATS; accordingly, all applicable rules intended to address system vulnerability are also applicable to remote aerodrome ATS. The GM is issued by EASA in order to aid stakeholders in the application of the rules to the specific remote aerodrome ATS environment.

comment	*251*	comment by: *European Transport Workers Federation - ETF*
	As remote aerodrome ATS is reaching a certain maturity, and as its development now impacts a more and more important part of the ATM sector and workers, and additionally, as solutions applied across the EU can differ, ETF thinks that "Guidance Material" is no more the appropriate legal instrument to deal with this matter. To ensure a high level of safety in the implementation of remote aerodrome ATS, and above all, the same level of safety across the EU, ETF supports the use of a more binding legal instrument than a soft law instrument especially when it comes to multiple mode of operations, which is likely to intorduce unsafe operations if not appropriately regulated. The main point of having regulations is to forbid the unsafe which this proposal fails to deliver.	

response	Not accepted.
	The rationale behind keeping the level of the material as 'guidelines' is described in detail in Section 2.3 of the NPA

1.2. Scope   p. 6

comment	*1*	comment by: *GdF*
	proposed comma:	

	validation, including To improve the document, we'll propose commas and other corrections to **all** of the text. Generally, we'll limit substantive comments to the new text.
response	Accepted The text has been changed accordingly.

1.1. Purpose and intended readership   p. 6

comment	159	comment by: *AESA*
	In the third paragraph, it would be appropiate that the technological aspects and security matters are also considered. The mentioned paragraph is not complete: "The document lists areas and issues for consideration when implementing remote aerodrome ATS, in particular those related to change management, safety and human factors".	
response	Not accepted. The cited sentence is not an exhaustive list; it just mentions the most important areas.	

comment	160	comment by: *AESA*
	It would be appropiate to mention the future regulation related to RMT-0161, because of its relation with the technological aspects of the remote aerodrome ATS. This GM itself could be affected by this future EASA regulation.	
response	Not accepted Only published documents can be referenced in a legislative document like this GM.	

comment	274	comment by: *LFV*
	Chapter 1.1, last paragraph; Comment on the text reading: 'In order to provide a single source of information encompassing all the aspects related to remote aerodrome ATS, EASA has opted for the development of a stand-alone 'Guidance Material' document.' Since the introduction of Appendix 1 to Annex VI 'Part-AIS' to Regulation 2017/373, and particularly Section AD 2.23 thereof – the statement in bold text is no longer true. LFV is in favour of removing all the remote aerodrome ATS related aspects from Appendix 1 to Annex VI 'Part-AIS', keeping such aspects instead in the Remote Tower GM document, as was the case before.	

Page 23 of 116

An agency of the European Union

| response | Noted.

EASA is aware of the issue mentioned. It should be noted that this GM addresses peculiar aspects of remote aerodrome ATS with the aim of facilitating the implementation; generally speaking, the regulatory framework of Part-AIS remains applicable also to this specific mode of service provision. EASA is currently working on a general revision of said Part-AIS framework and amendments thereto will proposed with an upcoming NPA (RMT.0719 Subtask 4b) if considered appropriate. |

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1. Introduction   p. 6

| comment | *273*   comment by: *LFV*

Chapter 1. (Introduction), last sentence;

Proposed amendment: This document provides support on how to meet these requirements in the case aerodrome ATS is provided ~~remotely~~ **by means of a visual surveillance system, potentially remote from the aerodrome**.

Justification: 'Remote aerodrome ATS' is not necessarily provided remotely, it could as well be provided locally, as e.g. is the case in Sundsvall and Budapest (and probably many other examples). Refer to the definitions 'remote aerodrome ATS' and 'remote tower'. The GM document provides support regardless if service is provide locally or remotely. |

| response | Not accepted

Changing the definition of remote aerodrome ATS has been considered and rejected. For detailed explanations, please refer to Section 2.3 of the NPA. |

1.3. Document structure   p. 7

| comment | *112*   comment by: *German NSA (BAF)*

1.2. Scope

"Hot spot"/"gap filler" cameras have not been considered as remote ATS until now. Does this mean that a conventional tower is supposed to be considered as (partly) providing remote ATS when using those installations.

Later on, a valueable reference is given to cameras supporting Apron Management. This is not ATS in a narrower sense but should also be considered as part of remote service provision? |

| response | Noted.

The last sentence of Section 1.2 reads: '(...) the guidance presented in this document may likewise be used as relevant for the case **when visual surveillance system** |

elements (e.g. 'hot spot/gap filler' cameras) **are used to support ATS provision in conventional towers.'** Meaning that the guidance may be used outside the context of remote aerodrome ATS, when technical systems usually implemented in support of remote aerodrome ATS are used for other services.

1.4. Background and justification	p. 8

comment	150	comment by: *IFATCA*

1.4.

We disagree in the deletion of this chapter as it could aid in explaining the background and history that have brought us up to this point.

The chapter should be reinstated and updated.

response	Not accepted

As the information presented in the chapter is old and gives no guidance, it has been deemed to be unnecessary.

comment	232	comment by: *Norwegian Air Traffic Controller Association*

NATCA disagrees in the deletion of this chapter as it could aid in explaining the background and history that have brought us up to this point in the development. The chapter should be reinstated and updated.

response	Not accepted

For explanation, please refer to the response to comment No 150.

2. Definitions	p. 9

comment	56	comment by: *GdF*

While we understand that the term "remote" might imply a larger distance, the proposed terms "digital / virtual tower" don't alleviate that problem. One might even say that a modern so-called conventional tower could be a "digital tower" and the word "virtual" is used in any and all contexts and is nothing more than a buzzword. Propose to keep using the term "remote tower", because the only real difference is the length of the cables. If needed, an additional sentence could be added to clarify, e.g. "The actual distance to the serviced aerodrome may vary from hundreds of metres to many kilometres."

response	Accepted

A note has been added to the definition for 'remote tower'.

comment	114	comment by: *German NSA (BAF)*
	'identify/identification' means the ability to correlate a detected or recognised object with a specific individual aircraft/vehicle;	
	This needs to be more delimited from direct voice contact with the aircraft.	
response	Not accepted	
	In a TWR environment visual identification is possible (e.g. reading the registration of the aircraft). Direct voice contact alone does not mean identification, hence no delimitation can be done here.	

comment	115	comment by: *German NSA (BAF)*
	page 10:	
	'visual presentation' means a view of the area(s) of responsibility of the aerodrome ATS unit, provided by a visual display.	
	It is more than this, it is also the area which is not area of responsibility but important to see.	
response	Accepted.	
	The text has been updated.	

3. The remote aerodrome ATS concept and modes of operation   p. 12

comment	2	comment by: *GdF*
	proposed comma:	
	2000s, and	
response	Accepted	
	The text has been updated.	

comment	3	comment by: *GdF*
	propose new word order to improve readability:	
	Since then, several initiatives to provide remote aerodrome ATS have been introduced into operation, with an increasing number of initiatives being undertaken throughout Europe as well as worldwide.	
response	Accepted	

The text has been updated.

comment	*116*	comment by: *German NSA (BAF)*

„Several initiatives to provide remote aerodrome ATS have since then been introduced into operation, with an increasing number of initiatives being undertaken throughout Europe as well as worldwide."

Are any of them implemented as basis in this document?

response	Noted.

Yes, through the participation of the implementing stakeholders in the Rulemaking Group.

comment	*161*	comment by: *AESA*

Once ICAO PANS ATM has been transposed at European level it would be appropriate to refer to the applicable requirements in the applicable regulations. This is even more imperative in those cases where reference is made to an OACI standard that has not been deemed necessary to be transposed at european level. Should this guidance material consider it necessary to apply it in this environment, the need to include it in the relevant European regulation should be considered.

response	Not accepted

PANS ATM is referenced here in the context of a 2015 implementation.

3.2. Single mode of operation   p. 13

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comment	*96*	comment by: *Europe Air Sports*

3.2 Single mode operation

This is the preferred mode of operation in EAS' view. We believe this mode is reasonably safe, considering the new risk factors listed in subsequent sections.

response	Noted.

comment	*275*	comment by: *LFV*

Chapter 3.2;
Although it is recognized that single mode of operation is conducted from one RTM there are occasions were single mode of operation is carried out from one RTM or the conventional TWR for the same airport. This refers to cases where it have been found practical to use the functional system this way. It is a form of mixed operation single mode (as comparison to mixed operations within chapter 3.3). This alternative mode may be mentioned as well in the text.

response	Not accepted. The situation described is considered to be addressed in Section 3.3, since the remote aerodrome ATS is not done simultaneously from the RTM and the conventional tower

3.3. Multiple mode of operation   p. 14

comment	*57*	comment by: *GdF*
	We are puzzled by the addition. Under which circumstances should a conventional tower be regarded as a remote tower? As far as we understood, one tower should be conventional and one should be serviced remotely. What would be the implications regarding licensing? How should the AFISO/ATCO work out of the windows and on screen at the same time? We don't think this highly specific fringe case should be covered in European guidance material, and the text lacks in quality and clarity.	
response	Noted. This possibility was identified during the work of the RMG. Mentioning it in the GM is purely the recognition that this is a possible mode of operation and the considerations that apply to 'classic' multiple mode should apply accordingly.	

comment	*97*	comment by: *Europe Air Sports*
	3.2 Single mode operation At this point in time we are somewhat doubtful about the feasibility of the multiple mode of operation. Rationale: There is in our view a high risk of loss of situational awareness at ATC level, and a risk of misinterpretation of messages heard at flight crew level. It could probably work in a low frequency environment. We are doubtful, however, if it will work when an emergency pops up in the air or on ground at one of the aerodromes served.	
response	Noted. The introduction and operation of multiple mode shall be undertaken in compliance with the applicable requirements in Regulation (EU) 2017/373 with regard to the assurance of an adequate level of safety. This also includes the implementation of adequate contingency and emergency procedures.	

3.4. Remote tower centre (RTC)   p. 14

3.5. Technical enablers for remote aerodrome ATS	p. 15

comment	*113*	comment by: *German NSA (BAF)*

"Hot spot"/"gap filler" cameras have not been considered as remote ATS until now. Does this mean that a conventional tower is supposed to be considered as (partly) providing remote ATS when using those installations?

Later on, a valueable reference is given to cameras supporting Apron Management. This is not ATS in a narrower sense but should also be considered as part of remote service provision?

response	Noted

Recognising a technical system as a remote aerodrome ATS enabler does not mean that the system concerned is a remote aerodrome ATS system. It may be used in other type of services as well.

comment	*162*	comment by: *AESA*

ED-240A Change 1 is referenced only in binocular functionality. Other functionalities, such as visual presentation and visual tracking, are also included in ED-240A Change 1.

ED-240A Change 1 includes several functionalities, such as binocular functionality, visual presentation, visual tracking, etc.

response	Noted.

ED-240A Change 1 is cited as an example; this is not an exhaustive list.

comment	*200*	comment by: *ENAIRE*

Enhanced functionalities of the binocular functionality. The list of technical enablers on section 3.5 does not match the list of advanced features on Appendix 4. Furthermore, it is to be considered including "PTZ tracking" as mentioned in Appendix 4. Otherwise, remove such term from Appendix 4, as long is not mentioned in other place along the document.
(See Section 5.2.7.2) <<Enhanced functionalities of the binocular functionality, e.g. automatic following of moving objects, commonly referred to as 'PTZ tracking' >>.

response	Partially accepted

'PTZ tracking' has been added to Section 5.2.7.2

Note that Section 3.5 provides a list of technical enablers, while Appendix 4 provides a list of functions as defined by SESAR. These two do not necessarily have to fully match.

4.1.1. Traffic volume/density and traffic complexity	p. 17

comment	*163*	comment by: *AESA*

The quality of the visual presentation is crucial, so why it is not established in this GM that it has to be analysed in the local safety assessment?

In addition, it's necessary to include a reference to the section 5.2 (Visual surveillance system), which gives some orientation on how to determine whether the quality of the visual presentation is good enough or not (see Reference to Appendix 5).

response	Noted.

The importance of safety assessment — including that of visual presentation — is highlighted throughout the GM.

Reference to Appendix 5 has been included in the new text of Section 5.2.

comment	*201*	comment by: *ENAIRE*

Text in 4.1.1. links binocular functionalities to local traffic and complexity. However, according to Appendix 4, binocular functionalities are part of the basic features, so it shall be considered as a minimum. Thus, text in 4.1.1. should refer to enhanced binocular functionalities, which are part of the advanced features. In page 18, the word „enhanced" should be added to the following paragraph: <<The traffic volume/density and traffic complexity will drive the requirements for the visual presentation and the need for **enhanced** binocular functionality>>.

response	Accepted

The text has been updated accordingly.

comment	*202*	comment by: *ENAIRE*

There is a typo error: <<SESAR validations ([26], **Error! Reference source not found**., [30], [33])>>.

response	Noted

The published version of the amended GM will include a complete revision of references and ensure consistency throughout the document.

4.1.2. Characteristics of the aerodrome layout   p. 18

comment	*4*	comment by: *GdF*

Please fix the reference

„Error! Reference source not found"

response	Noted

See the response to comment No 202.

comment	*164*	comment by: *AESA*
	Error reference not found.	
response	Noted See the response to comment No 202.	

comment	*252*	comment by: *European Transport Workers Federation – ETF*
	It seems that some references have been lost in the process, make sure those are valid and available in final document please.	
response	Noted See the response to comment No 202.	

4.1.3. Aerodrome switching under single mode of operation   p. 19

comment	*5*	comment by: *GdF*
	proposed improvement: detailed at the end of	
response	Accepted The text has been corrected.	

comment	*168*	comment by: *AESA*
	There is an typo in the updated requirement. The correct one is ATM/ANS.OR.B.035.	
response	Accepted The text has been corrected.	

4.1.4. Remote tower as backup facility   p. 19

comment	*6*	comment by: *GdF*
	proposed comma: phase, as well as the need	
response	Accepted The text has been corrected.	

comment	117	comment by: *German NSA (BAF)*
	Are there any guidelines on where the Backup facility should be located, e.g. on the airport ground? Maybe refer to 7.2.5.	
	When outages appear and the remote installation is implemented on the normal TWR, it should be important that the system has an indepentant redundancy.	
response	Noted	
	The placement of the backup facility shall be based on a local safety assessment.	

comment	165	comment by: *AESA*
	Error reference not found.	
response	Noted	
	See the response to comment No 202.	

comment	203	comment by: *ENAIRE*
	There is a tyupo error: <<SESAR validations ([26], **Error! Reference source not found.**, [30], [33])>> in page 20.	
response	Noted	
	See the response to comment No 202.	

4.2.1. Number and size of aerodromes in multiple mode of operation   p. 20

comment	169	comment by: *AESA*
	The number of collateral units of each airport should be considered, as it will determine the amount of coordinations needed and the number of phone lines to attend.	
response	Noted	
	The first paragraph covers that as well.	

comment	204	comment by: *ENAIRE*
	The type of ATS provided on each aerodrome (ATC or AFIS) and the provision of approach (APP) service should be explicitly mentioned, as there are aspects that should be assessed during the local implementation: such as personnel licensing and training, and HF issues due to the simultaneous provision of two different services with different scope. We suggest the next additon in page 21: <<The selection of the appropriate combination of aerodromes considering operational aspects (such as traffic levels and complexity, type of ATS provided on each aerodrome (ATC or AFIS),	

	APP service provision, meteorological conditions across the aerodromes, geographical locations and the aerodromes' surrounding topography/terrain, runway orientations, etc.) should be thoroughly considered when providing ATS via the multiple mode of operation>>.
response	Accepted

The text has been updated. |

4.2.2. Simultaneous aircraft movements on different aerodromes   p. 21

comment	*98*	comment by: *Europe Air Sports*
	4.2.2 Simultaneous aircraft movements on different aerodromes

EAS agrees that a very careful assessment is the key to future safe operations.

And we would like to add: a prerequisite will be the use of only one language on all radio frequencies to avoid misunderstandings, misinterpretations, and confusion. This should be added appropriately in this NPA. | |
| response | Not accepted

The language to be used is regulated in higher-level legislation, and it is not specific to remote aerodrome ATS. | |

comment	*118*	comment by: *German NSA (BAF)*
	It could be foreseen to make digital ATIS a mandatory element at remotely serviced aerodromes and to add a status reports on availability/level of service provision to it. This would enable users to refrain from unnecessary calls and plan for delays in service provision as not only AFISOs but also ATCOs might face a problem with incoming/outgoing uncontrolled traffic, and initial calls cannot be coordinated with other units.	
response	Not accepted

Mandating a technical service is beyond the scope of the guidance material. | |

comment	*228*	comment by: *European Cockpit Association*
	From the industry we have learned about „sequential mode of operation", being a modified multiple mode of operation, where one ATCO/AFISO is controlling more than one airport but not simultaneously. How does EASA view this?	
response	Noted

This is by definition a single mode of operation. | |

4.2.3. Aerodrome switching/merging/transferring/closing under multiple mode of operation p. 22

| comment | *254* | comment by: *European Transport Workers Federation – ETF* |

"Reallocating aerodromes and staff by opening/closing modules as necessary, particularly in case of unexpected situations (e.g. overload at an RTM, abnormal or unusual situation at an aerodrome, technical problem at an RTM, etc.)."

For ETF, the multiple mode shall not lead to changing the hours of ATS services on a particular aerodrome. No service disruption on any particular aerodrome on the initiative of the supervisor should happen. Only when there is an issue at one of the aerodromes (the aerodrome in question should be the only one to potentially have a service disruption) should the availability of services be at stake.

Authorities when prescribing the ATS service provision for an aerodrome and/or reviewing the services available should take extra care in making sure that introduction of remote aerodrome ATS does not result in a poorer availability of service.

Suggested rewording of 4.2.3 : "Switching/merging/transferring/closing of aerodromes should only be done when circumstances so allow. The ATS provider should establish the related procedures and conditions to adequately manage the operational circumstances (e.g. 'when and how') for any such implemented scenario. All mechanisms implemented should be validated, approved by the competent authority as part of the change to the functional system and documented in the operations manual (as specified by Regulation (EU) 2017/373 [4], Annex III, Subpart B, ATM/ANS.OR.B.035 'Operations manuals' Regulation (EU) No 1035/2011 [3] Annex I, Chapter 3.3 'Operations manuals')17**). Prescribed hours of ATS services at aerodromes should be observed and disruption on one aerodrome should not limit availability of service on another.**

Suggested rewording of 4.4.1: "Planning the allocation and combination of aerodromes and staff to modules in the RTC **within the predetermined hours of ATS services at these aerodromes**"

To further tackle these issues here mentioned, and also in relation to comments 13 and 20, the following should be considered:

"Prescribed hours for the provision of remote tower ATS should be in line with the operational needs of the aerodrome, and it should not be the case that limitations are placed on, or are likely to be placed on the level of service to, or operational hours of the aerodrome as a result of cost efficiencies inherently designed into the business case of the remote tower service"

| response | Not accepted. |

The determination of the need for, and the selection of the appropriate - ATS is a Member State responsibility, as established in Article 3a of Regulation (EU) 2017/373; complementary provisions about the availability of aerodrome ATS are

provided in point (b) of ADR.OR.C.005 of Regulation (EU) No 139/2014. These requirements are also applicable in the case of implementation of remote aerodrome ATS.

See also the response to comment No 95.

4.3.3. Local weather characteristics   p. 24

comment	*7*	comment by: *GdF*

proposed comma:

technical enablers, such as

response	Accepted

The text has been changed.

---

comment	*151*	comment by: *IFATCA*

4.4.1. The introduction of a supervisor role seems like a very natural step and that this Supervisor should be an ATCO when the RTC is providing ATC.

A supervisor role could SHOULD/SHALL be introduced in the RTC. Supervisor should as a minimum hold the endorsement of the type of RTM he/she is making the decisions for. If the RTC is providing ATC to one or more aerodromes the Supervisor should hold an ATCO licence.

response	Not accepted

The supervisor role is a possibility and not a necessity.

4.4.1. Supervision   p. 24

comment	*58*	comment by: *GdF*

We agree with the text and this is a good example for a regulation that should not only be GM, but an AMC.

response	Noted

For the level of legislation, please see the response to comment No 251.

---

comment	*74*	comment by: *Avinor*

Comment to 4.4.1 Supervision:
In bullet point no. 3 we suggest to add the text marked in bold

"Reallocating aerodromes and staff by opening/closing modules **or splitting/merging aerodromes** as necessary, particularly in case of unexpected situations (e.g. overload at an RTM, abnormal or unusual situation at an aerodrome, technical problem at an RTM, etc.)."

Justification: The suggested added text would be more appropriate when operating in a multiple mode of operations.

response	Accepted
	The text has been modified.

comment	119	comment by: *German NSA (BAF)*

What are the legal factors for supervisor in an RTC? Valid unit endorsement for all airports in the RTC? Or is it sufficient that he hold the unit endorsements in the past?

response	Noted
	This should be determined on a local level.

comment	141	comment by: *IFATCA*

"Reallocating aerodromes and staff by opening/closing modules as necessary, particularly in case of unexpected situations (e.g. overload at an RTM, abnormal or unusual situation at an aerodrome, technical problem at an RTM, etc.)."

Does this suggest that the supervisor can open/close ATC service to particular aerodromes outside of their normal operating hours?

comment: Would propose to clarify this statement as it seems to imply the supervisor can open/close ATC service to a particular aerodrome however they please.

response	Noted
	The phrase 'as necessary' does not mean 'as pleases the supervisor'.

comment	170	comment by: *AESA*

Maybe coordination with adjacent units Supervisor, when necessary, could be added. And also, Coordination in emergency situations with other stakeholders involved.

response	Accepted
	The text has been extended.

comment	171	comment by: *AESA*

	Consider the two different roles, a Chief Supervisor for the RTC and one Operational Supervisor per RTM.
response	Not accepted
	Section 4.4.1 suggests – but does not prescribe – the introduction of a supervisory function/role in the case this would be deemed appropriate based on the local operations. Nothing prevents the ATS provider from structuring such function/role as suitable.

comment	*214*	comment by: *European Cockpit Association*
	For conventional ATC, the supervisor will often carry a valid rating for the applicable Area/Approach/Tower. In the case of (larger) RTCs, this may not be the case anymore. This means that the RTC supervisor will not always be familiar with the specifics of all relevant aerodromes. This changes the role of the supervisor and should be addressed in this section.	
response	Accepted	
	The text has been updated.	

comment	*233*	comment by: *Norwegian Air Traffic Controller Association*
	The introduction of a supervisor role seems like a very natural step and that this Supervisor should be an ATCO when the RTC is providing ATC. A supervisor role ~~could~~ SHOULD/SHALL be introduced in the RTC. Supervisor should as a minimum hold the endorsement of the type of RTM he/she is making the decisions for. If the RTC is providing ATC to one or more aerodromes the Supervisor should hold an ATCO licence.	
response	Not accepted	
	See the response to comment No 151.	

comment	*253*	comment by: *European Transport Workers Federation – ETF*
	"…a supervisor role could be introduced in the RTC… " ETF welcomes the introduction of a mention of a supervisor role. However, it seems necessary to adapt the level of requirement for this role to the size of the RTC. We would propose to make it mandatory for RTC with more than 2 modules. For a better value of this role, especially if a support of RTM operators should occur, the supervisor role should be devoted to a member of staff holding or having held valid unit endorsement for at least one of the aerodrome serviced from the RTC. Proposed amendment :	

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"a supervisor role could be introduced in the RTC, and it should be introduced in an RTC where more than 2 RTM are operated, in order to lead, supervise and assist the operation at the RTC

The supervisor should be an ATCO holding or having held unit endorsements of the RTC'

response | Partially accepted

See the responses to comments Nos 151 and 214.

comment | *254* ❖   comment by: *European Transport Workers Federation – ETF*

"Reallocating aerodromes and staff by opening/closing modules as necessary, particularly in case of unexpected situations (e.g. overload at an RTM, abnormal or unusual situation at an aerodrome, technical problem at an RTM, etc.)."

For ETF, the multiple mode shall not lead to changing the hours of ATS services on a particular aerodrome. No service disruption on any particular aerodrome on the initiative of the supervisor should happen. Only when there is an issue at one of the aerodromes (the aerodrome in question should be the only one to potentially have a service disruption) should the availability of services be at stake.

Authorities when prescribing the ATS service provision for an aerodrome and/or reviewing the services available should take extra care in making sure that introduction of remote aerodrome ATS does not result in a poorer availability of service.

Suggested rewording of 4.2.3 : "Switching/merging/transferring/closing of aerodromes should only be done when circumstances so allow. The ATS provider should establish the related procedures and conditions to adequately manage the operational circumstances (e.g. 'when and how') for any such implemented scenario. All mechanisms implemented should be validated, approved by the competent authority as part of the change to the functional system and documented in the operations manual (as specified by Regulation (EU) 2017/373 [4], Annex III, Subpart B, ATM/ANS.OR.B.035 'Operations manuals' Regulation (EU) No 1035/2011 [3] Annex I, Chapter 3.3 'Operations manuals')17**). Prescribed hours of ATS services at aerodromes should be observed and disruption on one aerodrome should not limit availability of service on another.**

Suggested rewording of 4.4.1: "Planning the allocation and combination of aerodromes and staff to modules in the RTC **within the predetermined hours of ATS services at these aerodromes**"

To further tackle these issues here mentioned, and also in relation to comments 13 and 20, the following should be considered:

"Prescribed hours for the provision of remote tower ATS should be in line with the operational needs of the aerodrome, and it should not be the case that limitations are placed on, or are likely to be placed on the level of service to, or operational hours of the aerodrome as a result of cost

efficiencies inherently designed into the business case of the remote tower service"

response	Not accepted
	See the response to comment No 254.

4.4.2. Holders of multiple endorsements	p. 24

comment	*59*	comment by: *GdF*
	"…the holders of more than one unit aerodrome endorsement should not be treated differently unless the level of harmonisation of equipment and/or ATM procedures is considered mitigating." Do not agree. ATCOs and FISOs, working in an ACC environment, need to fulfil the requirements of B.025 without such a provision, as do ATCOs/AFISOs holding multiple conventional tower ratings. This seems to be an added cost saving measure, possibly impacting competency negatively. Agree with the rest of the paragraph.	

response	Not accepted
	The text reflects a wide agreement among stakeholders. Also, GM should not be prohibitive.

comment	*120*	comment by: *German NSA (BAF)*
	The minimum hours of each unit endorsement should be the overall number of hours to regulate uniformly between ATCO/AFISO. How strict is EASAs expectation (cf. Chapter 10.2: "it is left to the MS to define the appropriate regulatory means") to be interpreted that the framework for an even distribution of operational hours (e.g. application of ATCO UCS rules to AFISOs) is set by the competent authorities?	

response	Noted
	This is GM level, so it should be interpreted as guidelines, and Member States should decide on these requirements considering local circumstances.

comment	*139*	comment by: *HungaroControl*
	We agree with the proposed three concurrent unit endorsements as a limit. Information: • SESAR PJ05-35 is currently assessing the dynamic allocation of aerodromes, with the assumption that 4 endorsements are possible (but the ATCO/AFISO can only provide ATS up to 3 aerodromes simultaneously from the RTM).	

response	Noted

comment	*142*	comment by: *IFATCA*

> "the limit seems to be three concurrent unit endorsements."

Where is the data to support this statement?

response	Noted

A small survey was conducted among members of the RGM where this is done in reality. The answers received from holders of multiple unit endorsements were reviewed and followed up with a video conference with one of the ANSPs. Practical experience shows that more than three is not suitable for maintenance of the licence and refresher trainings due to the hours required.

comment	*172*	comment by: *AESA*

Same consideration for holders of multiple endorsements should be applied when working in multiple mode of operation?

response	Noted

As there is no approved operationally used multiple mode exist yet, the topic will be dealt with in the next issue of the GM.

comment	*209*	comment by: *ENAIRE*

Although it is already included in Regulation (EU) 2015/340, as this is the first reference to unit endorsement in multiple mode operation in the guide, it would be useful to clarify the scope of this endorsement. In page 24 the text <<Whenever licence holders are authorised to hold concurrently more than one unit endorsementXX (…)" should add a footnote with the following <<According to AMC1 ATCO.B.020(a) to Regulation (EU) 2015/340, each aerodrome for which aerodrome ATC service is provided from an RTC, should constitute its own unit endorsement>>. Otherwise an alternative definition would be deemed necessary upon stakeholders´ consultation.

In page 25, the text regarding the minimum hours for competence maintenance is confusing. Does it refer to harmonisation of equipment in each aerodrome (lights, nav aids, …) or between RTMs? Besides, the text refers to training aspects that could be best placed in Regulation (EU) 2015/340 as AMC/GM. Therefore we suggest to delete the phrase <<When defining the minimum hours of exercising the privileges in the context of the competence scheme, the holders of more than one unit aerodrome endorsement should not be treated differently unless the level of harmonisation of equipment and/or ATM procedures is considered mitigating. A

minimum number of hours should be retained for each unit endorsement individually and a number of hours for the overall exercises as well. Equipment may facilitate the logging of the required hours>>. Otherwise it would be useful to modify this paragraph and include it as changed as AMC/GM to Regulation (EU) 2015/340.

response	Partially accepted
	A footnote has been added and the second paragraph has been clarified.
	Harmonisation is meant between RTMs; experience indicates that when, for example, the equipment and procedures are harmonised between RTMs, a reduction of the hours required under the unit competence scheme may be possible

comment	*216*	comment by: *European Cockpit Association*
	Regarding multiple endorsements the current experience seems to limit the number of concurrent unit endorsements to three. RTCs serving far more aerodromes are currently planned or operational. This will require careful planning and training so that all airports are covered in all situations, whilst also maintaining sufficient ATCO/AFISO exposure.	

response	Noted

comment	*255*	comment by: *European Transport Workers Federation – ETF*
	"the limit seems to be three concurrent unit endorsements." Where is the data to support this statement?	

response	Noted
	See the response to comment No 142.

comment	*256*	comment by: *European Transport Workers Federation – ETF*
	„A minimum number of hours should be retained for each unit endorsement individually and a number of hours for the overall exercises as well. Equipment may facilitate the logging of the required hours. " Paragraph 1.1 states : "In order to ensure regulatory consistency with existing regulatory material, the aspects related to the qualification and training of air traffic controllers (ATCOs) are dealt with through a separate set of AMC and GM to Regulation (EU) 2015/340 (See Annex II to ED Decision XXX) [5]." See in the same way paragraph 10.1 Qualification and training of ATCOs Therefore, ETF proposes to withdraw this part of paragraph 4.4.2, as it is linked to ATC qualifications and training.	

response	Not accepted
	See the response to comment No 209.

| **4.4. Remote tower centre operations** | **p. 24** |

| comment | *276* | comment by: *LFV* |

Chapter 4.4;
As with the development of a supervisor for operational purposes it is equally important to include the role of the technical supervisor that not only deal with technical operations at a remote airport in some aspects but also coordinates technical supervision within the RTC. It might be interconnected to chapter 5.11.

| response | Not accepted |

The need for a technical supervisor is highly dependent on the deployed technology and procedures, thus strongly linked to the local environment — no general guidance can be given.

| **5. Operational and system considerations** | **p. 26** |

| comment | *8* | comment by: *GdF* |

proposed comma:

and requirements, as well

| response | Accepted |

The text has been changed.

| **5.1. Remote aerodrome ATS procedural considerations** | **p. 26** |

| comment | *9* | comment by: *GdF* |

proposed comma:

tower operation, there is often a

| response | Not accepted |

| comment | *77* | comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)* |

5.1 Remote aerodrome ATS procedural considerations, pg 26

Rationale: Since this chapter cover the general procedural aspects for remote aerodromes, it need to highlight the importance to establish operational contingency procedures in case of the degradation or loss of its service. Since any stable and swift contingency procedures needs cooperation from both parties' involved, can be more

parties involved for example an ATCC, but at the minimum the aerodrome operator and RTM ATS service provider to operate the aerodrome safely under degraded modes. The arrangements should be included in an SLA/contract between aerodrome operator and ATS service provider, and for NAA since it´s integral part of the certification process and well as it´s continues NAA oversight. This is especially important since the NPA include removed text in the end of ch. 5.1, no need to remove this crossed over text even though it is covered in some parts of other chapters in the NPA.

Text change:

-There might be cases where the ATS provider performs tasks which fall under the responsibility of the aerodrome operator. In case such tasks are to be continued to be performed by the ATS provider, following the introduction of remote aerodrome ATS, specific agreements between the ATS unit and the aerodrome operator should be in place21. Particular considerations regarding these tasks and contingency procedures should be included in the Service Level Agreement / contract between ATS service provider and aerodrome operator to achieve adequate redundancy measurers in case of partial or single or multiple failures at the RTC.

Last: This crossed over text could remain for clarity.

The ATS provider should put in place procedures and contingency plans that clearly define how to deal with unexpected or unusual events, such as an emergency at one of the aerodromes that significantly increases ATCO/AFISO workload and affects their ability to continue to provide ATS to all aerodromes under their responsibility. Such procedures and situations require adequate and recurrent training.

response	Partially accepted
	The suggested extra text has been inserted. The removed text has been removed for the same reason the comment names: it is dealt with elsewhere.

comment	*173*	comment by: *AESA*
	In the first two bullets, why the aspects related to contracted activities (ATM/ANS.OR.B.015) are not mentioned?	
	These bullets only mention formal interfaces (ATM/ANS.OR.B.005(f)).	

response	Accepted
	A reference has been added to the text.

comment	*234*	comment by: *Norwegian Air Traffic Controller Association*
	We disagree in the deletion of the last paragraph concerning contingency plans.	

response	Noted
	See the response to comment No 77.

comment	*257*	comment by: *European Transport Workers Federation – ETF*

We disagree with the deletion of the last paragraph regarding contingency plans.

Why is this deleted ?

response	Noted
	See the response to comment No 77.

5.2. Visual surveillance system p. 27

comment	*10*	comment by: *GdF*

requirements ~~on~~ **of** the visual presentation

response	Not accepted
	The preposition 'on' is considered to be the proper one in this sentence — in the sense of 'regarding, about, in relation to, etc.

comment	*121*	comment by: *German NSA (BAF)*

Part of the checklist with the minimum requirements to be in line with the regulations (12.1 page 88)

Clarification received: Which requirements/conditions should be necessary to be in line with the visual surveillance system? When you develop the visual system there should be a checklist or guideline to fulfil the requirements.

response	Noted
	Extensive guidance on the visual surveillance system, which is further updated through the current regulatory activity is provided in Section 5.2 of the GM. In this context, a reference is made to EUROCAE ED-240A standard. The visual surveillance system should be tailored to local prerequisites, circumstances, and operational needs.

comment	*143*	comment by: *IFATCA*

"Fully replicating the visual performance obtained via direct OTW visual observation is also not key to the implementation of remote aerodrome ATS."

comments:

Not sure what is meant by "fully replicating…" Not sure what this statement is getting at other than having limited views of an aerodrome and providing service. This statement is in direct oppositions to:

Chapter 7.1.1.2 of ICAO Doc 4444 (PANS-ATM)21 [14]states that 'Aerodrome controllers shall maintain a continuous watch on all flight operations on and in the

vicinity of an aerodrome as well as vehicles and personnel on the manoeuvring area. Watch shall be maintained by visual observation, augmented when available by an ATS surveillance system.' Furthermore, Chapter 7.1.1.2.1 states that 'Visual observation shall be achieved through direct out-of-the-window observation, or through indirect observation utilizing a visual surveillance system which is specifically approved for the purpose by the appropriate ATS authority.' In addition, Part III, Section 2, Chapter 2.1.1 a) of ICAO Doc 9426 (ATS Planning Manual) [15] states that 'the tower must permit the controller to survey those portions of the aerodrome and its vicinity over which he exercises control'.

response	Noted
	The statement is not in opposition to ICAO documentation — on the contrary, the GM stresses that all regulatory obligations must be fulfilled.

comment	*152*	comment by: *IFATCA*
	5.1. We disagree in the deletion of the last paragraph concerning contingency plans.	
response	Noted	
	See the response to comment No 77.	

comment	*153*	comment by: *IFATCA*
	5.2. We would really like to see EASA set a minimum value for refreshrate and resolution in this chapter	
response	Not accepted	
	Setting minimum performance values in GM is not appropriate. Furthermore, these values are highly site-dependent and shall be defined through a safety assessment.	

comment	*174*	comment by: *AESA*
	In section 2. Definitions the GM says:	

"Out-of-the-window (OTW) view means a view of the area of responsibility of the aerodrome ATS unit from a conventional tower, obtained via direct visual observation"
and
"'visual presentation' means a view of the area(s) of responsibility of the aerodrome ATS unit, provided by a visual display"
But afterwards, in point 5.2 Visual surveillance system, there is a paragraph in which it is accepted that "the human vision sensing system is very sophisticated and that it may not be feasible to precisely replicate the ATCO/AFISO visual performance that could be obtained via direct OTW visual observation" later on in the same paragraph it s said "Fully replicating the visual performance obtained via direct OTW visual observation is also not key to the implementation of remote aerodrome ATS. Instead, it is fundamental to define operational visual performance requirements —

corresponding to the specific operational context — and ensuring that they can be supported by the visual surveillance system".

So, in fact, which is defined as "Out of the window view" and "Visual presentation" is irrelevant, since the visual presentation is not dependent on what the aerodrome ATS service provision requires, but in the system capacities.

response	Noted
	The two definitions are provided as the terms are extensively used throughout the GM and EASA considered appropriate to define their meaning in the context of remote aerodrome ATS. EASA confirms that 'it is fundamental to define operational visual performance requirements — corresponding to the specific operational context — and ensuring that they can be supported by the visual surveillance system' as stated in the GM. Therefore, the visual surveillance system supporting ATS provision should be tailored to the operational requirements and not vice versa.

comment	*175*	comment by: *AESA*
	Why is there no reference to ToIREQ (Tracking-of-Interest Requirement) in the NPA? If Visual Tracking function is implemented, ToIREQ should be defined by the service/operator provider to be aware of the characteristics of objects considered salient, so ToIREQ should be refered in case of Visual Tracking function. According to ED-240A Change 1, if optional Visual Tracking function is implemented, not only should AOREQ requirements be considered , but also ToIREQ requirements. The operator provider may additionaly specify what s/he desires to be augmented to support situational awareness. ToIREQ allows the operator/service provider to communicate to the system implementer the characteristics of objects that would be considered salient to improve the reliability of the Visual Tracking function.	

response	Accepted
	A reference has been added.

comment	*176*	comment by: *AESA*
	Shouldn´t all the considerations included in this section be part of a local safety assessment? Need for clarification	

response	Noted
	Every aspect of a remote aerodrome ATS implementation shall be included in the local safety assessment even when it is not explicitly mentioned in each section of the GM.

comment	*210*	comment by: *ENAIRE*

The process recommended in the second added paragraph is not fully coherent with the validation process described in EUROCAE 'ED-240A Change 1' MASPS document. Whereas the text in the guide recommends "the visual surveillance system is operationally validated in various visual conditions", Sections 3.1.6 and 5.1.2 "Reference Light & visibility conditions" from ED-240A change1 define specific reference conditions for testing the system (i.e. Daylight, no clouds, visibility >10km). It states that "system performance against operational requirements should be validated under the standard reference condition". Given the importance of the operational validation under different conditions, due to the potential reduction of the system performance, further clarification should be included. We therefore suggest to include additional text: <<It is recommended that the visual surveillance system is operationally validated against the perceived total image quality, and not only against individual system parameters. The general operator's acceptance process described in EUROCAE 'ED-240A Change 1' MASPS document serves as a first verification of the performance of the visual surveillance system under reference (i.e. optimal) conditions. However, it is furthermore recommended that the performance of the visual surveillance system is operationally validated in various visual conditions (e.g. dawn, daylight, dusk, darkness and different visibility conditions), not only as a variation in time but also as a variation in the presented view of the aerodrome and its vicinity at one point in time — as light conditions are likely to differ across the view. Different local operational visual performance requirements should be defined for the different visual conditions considered. It may be beneficial to apply a 'scenario/use case' approach (…)>>.

response	Accepted

The text has been updated.

comment	*211*	comment by: *ENAIRE*

Commenting on section 5.2.7.2 „Binocular-functionality-related functional requirements", in case that more than one independent PTZ is available, the aspects related to the assignment, transfer and locking of each PTZ to a workstation should not be forgotten. We therefore suggest additional text <<When the RTM comprises several separate roles/workstations (typically for larger aerodromes), the use of independent binocular functionalities and their independent presentation for each role/workstation should be considered (to avoid distraction amongst the ATCOs/AFISOs). In case that more than one independent PTZ is available, operational, technical and human factors related to the assignment, transfer and locking of each PTZ shall be assessed>>.

response	Accepted

The text has been updated.

comment	*235*	comment by: *Norwegian Air Traffic Controller Association*

We would really like to see EASA set a minimum value for refreshrate and resolution in this chapter. For refreshrate a number around what the human eye can percive, around 25Hz would be a good minimum value.

response | Not accepted

See the response to comment No 153.

comment | *258*   comment by: *European Transport Workers Federation – ETF*

"Fully replicating the visual performance obtained via direct OTW visual observation is also not key to the implementation of remote aerodrome ATS."

This statement may be interpreted as standard setting lower than should be applied to be in line with Chapter 7.1.1.2 of ICAO Doc 4444 (PANS-ATM)21 [14]. It states that 'Aerodrome controllers shall maintain a continuous watch on all flight operations on and in the vicinity of an aerodrome as well as vehicles and personnel on the manoeuvring area. Watch shall be maintained by visual observation, augmented when available by an ATS surveillance system.' Furthermore, Chapter 7.1.1.2.1 states that 'Visual observation shall be achieved through direct out-of-the-window observation, or through indirect observation utilizing a visual surveillance system which is specifically approved for the purpose by the appropriate ATS authority.' In addition, Part III, Section 2, Chapter 2.1.1 a) of ICAO Doc 9426 (ATS Planning Manual) [15] states that 'the tower must permit the controller to survey those portions of the aerodrome and its vicinity over which he exercises control'.

ETF suggests to withdraw this sentence.

response | Not accepted.

See the response to comment No 143.

5.2.2. Binocular functionality   p. 29

comment | *11*   comment by: *GdF*

Uncountable nouns generally should not be accompanied by an indefinite article.

that lists binoculars as a̶ recommended equipment

response | Accepted

The text has been amended.

5.2.3. Primary/direct regulatory requirements affecting a visual surveillance system   p. 29

comment	*12*	comment by: *GdF*
	proposed comma: of an aerodrome, as well as	
response	Accepted The comma has been added.	

comment	*122*	comment by: *German NSA (BAF)*
	Darkness conditions → via thermal image? Clarification received: How is the surveillance guaranteed under dark conditions? Thermal imaging camera was a proposal based on experience from visiting Bodø (remote AFIS).	
response	Noted The utilisation of thermal cameras is to be addressed on a local level. The availability of ATS surveillance systems may contribute to the ATCO/AFISO situational awareness too.	

comment	*177*	comment by: *AESA*
	„Visual observation shall be achieved(…) or through indirect observation utilizing a visual surveillance system which is specifically approved for the purpose by the appropriate ATS authority." This has already been transposed in AMC1 ATS.TR.205 (c), though there is no specific mention to an approval.	
response	Noted The text has been updated to reference point (b) of AMC1 ATS.TR.205(c) to Regulation (EU) 2017/373 (EU); this means that the quoted text has been deleted after the consultation process.	

comment	*178*	comment by: *AESA*
	It would be advisable to change the term „surveillance system" for „visual surveillance system".	
response	Accepted The text has been updated.	

5.2.4. Indirect regulatory requirements affecting a visual surveillance system   p. 31

comment	13	comment by: *GdF*
	the aerodrome control ~~towers~~ **tower's** responsibility	
response	Accepted The text has been updated.	

comment	14	comment by: *GdF*
	proposed comma: obstructions, as well as under	
response	Accepted The text has been updated.	

comment	124	comment by: *German NSA (BAF)*
	ICAO Doc 4444, Chapter 7.1.1.1 obstractions → kind of labelling (reminder during darkness or limited visual conditions)?	
response	Not accepted The EASA understanding of the comment is that the commentator suggests considering the labelling of obstructions on the HMI. It should be noted that this section provides guidance on the requirements affecting the visual surveillance system, while such a proposed arrangement should be addressed in the context of the ATCO working position.	

5.2.6. Camera siting aspects   p. 33

comment	15	comment by: *GdF*
	propose nighttime or preferably „lighting glare at night", which is actually defined in EASA regulation	
response	Accepted The text has been updated.	

comment	179	comment by: *AESA*
	Quick accessibility for maintenance purposes should be also considered.	

response	Accepted
	The text has been updated.

comment	*180*	comment by: *AESA*
	It would be useful to include a bullet related to Aeronautical Easements.	
	It's not clear if it is included in the third bullet: „location of the communication, navigation and surveillance equipment (both existing and planned) to prevent any potential interference; „	
response	Accepted	
	The text has been updated.	

comment	*181*	comment by: *AESA*
	It would be useful to include a note referring to section 7.1.4.	
	There is related information regarding camera siting aspects in section 7.1.4.	
response	Accepted	
	The text has been updated.	

5.2.7. Functional considerations for a visual surveillance system   p. 34

comment	*16*	comment by: *GdF*
	cameras/screens in **a** visual presentation	
response	Accepted	
	The text has been updated.	

comment	*17*	comment by: *GdF*
	proposed comma	
	and its configuration, resulting	
response	Accepted	
	The text has been updated.	

comment	*18*	comment by: *GdF*
	proposed comma	

	operational needs, taking into account the
response	Accepted The text has been updated.

comment	*19*	comment by: *GdF*
	animal interference ~~on~~ **to** cameras/sensors	
response	Not accepted	

comment	*20*	comment by: *GdF*
	Overlaid ~~framing~~ frames	
response	Not accepted Frames relate to video frames which is not the case here.	

comment	*60*	comment by: *GdF*
	5.2.7.5 Agree with the added content explicitly and commend the author(s) for the technical quality of the text.	
response	Noted	

comment	*144*	comment by: *IFATCA*
	5.2.7.5. Difference in daylight/darkness perception "The understanding of these differences should be part of conversion training, and/or technical procedural mitigations should be put in place." Formal safety assessments should take place.	
response	Noted	

comment	*154*	comment by: *IFATCA*
	5.2.7. We would really like to see EASA set a minimum value for refreshrate and resolution in this chapter	
response	Noted See the response to comment No 153.	

comment	182	comment by: *AESA*

The reference to ED-240 A has been updated to ED-240A Change 1, but not the codes of the related requirements (applicable to paragraphs 5.2.7.2, 5.2.7.3 and 5.2.7.8).

response	Accepted

The references have been updated.

comment	183	comment by: *AESA*

Why are sections 3.1.1 and 3.2.3 from ED-240A Change 1 referenced for further considerations related to video update rate, instead of section 3.4.2.2? (applicable to paragraph 5.2.7.4).

Section 3.1.1 is related to General Remarks and Section 3.2.3 is related to Tracking-of-Interest Requirements (ToIREQ). However, section 3.4.2.2 is related to Video Update Rate.

response	Accepted

The reference has been updated.

comment	184	comment by: *AESA*

It should be included that the perception and capability to see objects/weather in varying light conditions should be performed in the SAT test and/or local safety assessment. (applicable to paragraph 5.2.7.5).

Section 3.1.1 is related to General Remarks and Section 3.2.3 is related to Tracking-of-Interest Requirements (ToIREQ). However, section 3.4.2.2 is related to Video Update Rate.

response	Accepted

SAT and local safety assessment have been added to the text

comment	219	comment by: *European Cockpit Association*

Regarding video latency & update rate: Has the option of lower values for backup systems been considered? This may reduce the cost and increase the possibilities for backups, whilst only marginally reducing effectiveness.

response	Noted

See the response to comment No 153.

comment	241	comment by: *German NSA (BAF)*

5.2.7.2 Binocular-functionality-related functional requirements

To improve safety it may be a good way to set a minimum requirement for RTM but to add the requirements for improved safety within x years (labelling and automatic following function).

response	Not accepted
	Mandating equipage is beyond GM level.

comment	*242*	comment by: *German NSA (BAF)*
	5.2.7.5 Difference in daylight/darkness perception and Aerodrome sound	
	Have medical requirements been taken into consideration, e.g. the distant vision requirements in a remote environment?	
response	Noted	
	Yes, already in the old version. Nothing new is introduced here.	
	Aero-medical examiners should familiarise themselves with the working environment.	

comment	*259*	comment by: *European Transport Workers Federation – ETF*
	« it is essential that the visual surveillance system is operationally validated against the perceived total image quality, rather than against specific image quality factors. »	
	ETF is of the opinion that it is equally essential to monitor that the available image is continuously enabling to perceive the objects needed for coherent ATS service provision.	
response	Noted.	
	Continuous validation is always required to ensure the technical system functions within the required parameters. This is true in all types of ATS and not connected to remote ATS. For details, see Section 5.2.	

comment	*277*	comment by: *LFV*
	Chapter 5.2.7.2, last sentence;	
	For recommended requirements on control latency and camera movement speed performances, refer to EUROCAE ED-240A Change 1 [19] (REQ 06 to 10) – The ED-240A requirement references are no longer correct, they need to be updated against the new Change 1 document (all requirements have new naming/numbering). This comment is valid for several other places in the GM document as well.	
response	Partially accepted	

References to specific requirements have been removed to avoid misalignment in case of a change to ED-240.

comment	220	comment by: *European Cockpit Association*

Regarding video latency & update rate: has the option of lower values for backup systems been considered? This may reduce the cost and increase the possibilities for backups, whilst only marginally reducing effectiveness.

response	Not accepted

See the response to comment No 153.

5.2.8. Technical enablers for increased situational awareness — p. 38

comment	21	comment by: *GdF*

proposed comma:

This way, the following

response	Not accepted

The use of a comma is not necessary in the case of short introductory phrases (typically two to three words).

comment	22	comment by: *GdF*

~~night time~~ **nighttime** or **night** (see above)

response	Not accepted

According to the Oxford dictionary, 'night-time' is correct.

comment	126	comment by: *DTA/MCU*

• operational/AIP- and service-related: runway/taxiway/apron designators, visual reminders such as 'RWY blocked' markings to aid with runway incursion prevention, aerodrome assets/systems status such as lighting, clock, checklists, aeronautical information (NOTAM, SNOWTAM, etc.), other operational information (e.g. runway conditions like water, snow or mud presence, coefficient of friction, etc.).

to be replaced by:

• *operational/AIP- and service-related: runway/taxiway/apron designators, visual reminders such as 'RWY blocked' markings to aid with runway incursion prevention, aerodrome assets/systems status such as lighting, clock, checklists, aeronautical*

information (NOTAM, SNOWTAM, etc.), other operational information (e.g. ~~runway conditions like water, snow or mud presence, coefficient of friction,~~ RCR, RWYCC etc.).

Comment: The initial wording does not take into account issuance of GRF implementation applicable since the 12th of august 2021.

response	Accepted The text has been updated.

comment	*222*	comment by: *European Cockpit Association*

Regarding technical enablers for increased situational awareness: What about use of augmented reality goggles for controllers? This option was presented in the SESAR webinar of 15/9/2021 (https://www.sesarju.eu/node/3652). This may be an interesting option, but would require some form of regulation.

5.2.8.1 Considerations when implementing visual presentation technical enablers
Possibly a guarantee that the remote tower can operate, even when the advanced technical features are not working. This should be included in the training.

response	Noted Experimental technologies that may or may not be used in the future are beyond the GM scope. Mitigation for technical failures is a basic consideration in all ATM operation, and already covered in the GM extensively.

comment	*244*	comment by: *German NSA (BAF)*

5.2.8.1 Considerations when implementing visual presentation technical enablers

Technical enablers could be also movement identifiers that when an aircraft appears on screen it will be framed with a red box. Problem is that any movement e.g. from clouds is detected and must be must be distinguished by the ATCO/AFISO.

response	Noted. Not every possible technology is mentioned in the GM. New technologies introduced in the future shall be assessed as any other existing technology used currently.

5.3. Signalling lamp   p. 40

comment	*23*	comment by: *GdF*

proposed comma

is effectively performed, and the

response	Not accepted
	Using a comma is not considered necessary.

5.4. Aerodrome sound	p. 41

comment	*186*	comment by: *AESA*
	Particular care should be taken when deciding the aerodrome sound detection devices site. Nearby noise or impact of wind on the microphnes could shield the aerodrome sound. It should be useful to have more detailed information.	
response	Accepted The text has been updated.	

comment	*155*	comment by: *IFATCA*
	The discussion in section 5.13.4 would benefit being referenced here and also a mention of the difficulties of having aerodrome sound from up to three different aerodromes presented in the RTM added up with other RTMs in the RTC would be problematic.	
response	Partially accepted The reference has been added.	

comment	*185*	comment by: *AESA*
	Particular care should be taken when deciding the aerodrome sound detection devices site. Nearby noise or impact of wind on the microphnes could shield the aerodrome sound.	
response	Noted. See the response to comment No 186.	

comment	*236*	comment by: *Norwegian Air Traffic Controller Association*
	The discussion in section 5.13.4 would benefit being referenced here and also a mention of the difficulties of having aerodrome sound from up to three different aerodromes presented in the RTM added up with other RTMs in the RTC would be problematic.	

response	Noted
	See the response to comment No 155.

comment	*243*	comment by: *German NSA (BAF)*
	Have medical requirements been taken into consideration, e.g. the distant vision requirements in a remote environment?	

response	Noted
	See the response to comment No 242.

5.5. Communications   p. 41

comment	*24*	comment by: *GdF*
	Propose to remove reference to the partially obsolete manual. Would it be possible to add a reference to the upcoming EASA regulation on "Ground Systems"?	

response	Not accepted
	Unpublished rules cannot be referenced.

comment	*278*	comment by: *LFV*
	Chapter 5.5, last paragraph, first sentence; Proposed amendment: Also, for backup or emergency radio systems (refer to ICAO Doc 4444 [14] Chapter 8.3.1), a dedicated and independent backup connection between the aerodrome and the remote facility ~~will~~ **may** be required. Justification: It seem incorrect to use the word 'will' here. If the "remote" tower is located on or near the aerodrome it is providing service to, handheld radios might be sufficient, thus no need for an additional dedicated independent backup connection for the purpose of emergency radios. Also, Doc 4444 is not legally binding in that way. Doc 4444 Ch 8.3.1 has been transposed into GM1 ATS.OR.400(a) of Reg. 373, where the wording used is 'should'.	

response	Partially accepted
	'Should' has been used instead of 'will' to be in line with GM1 ATS.OR.400(a).

5.6. Voice and data recording   p. 43

comment	*25*	comment by: *GdF*
	1) aerodrome sound reproduction**,** ~~(if implemented)~~.	

2)
The data recorded should be normally recorded at two points:
— through the wall (data obtained from the sensors or through the network),
— at the glass (operational screens recorded as seen by the controller, captured by a screen
capture device).

These terms may be self-explanatory to specialists, but not others. Propose different wording:

The data should be recorded from two sources:
- data obtained from the sensors directly or through a network
- data recorded as seen by the ATCO/AFISO on the screen, captured by a screen capture device.

Additionally, we propose to include AFISOs, as you can see.

response	Partially accepted
	Point 2) has been accepted and the text has been updated.

comment	63	comment by: *Saab AB*
	The section is titled, Voice and data recording. We interpret that the section includes a mixture of recommendations on technical recording and recording of data to support investigations, the lateral in popular terms Legal Recording. We would recommend to clarify the content of this section with an emphasis on recommendations related to the recording and retention of recorded information and data to support accident and incident investigations according to ATS.OR.455 as this is the essential part to support the implementers. Whereas technical recording with the purpose of verifying system functionality is dependent on the design of the technical system itself. In that context and with respect to recording of the visual presentation we propose to limit the recommendations to record data "at the glass", and that the recordings should be representative, and not necessarily equal to the visual presentation. We think that it is essential that the recommendations (as well as binding requirements) are on a functional level to allow for technical development, and to minimize wasteful use of system resources.	

response	Noted
	The section deals only with legal recording. Technical recording is outside the scope of the GM.

comment	87	comment by: *Karl Óli Lúðvíksson*
	Isavia ANS, the ANSP for Iceland has a comment with the above wording:	

When recording the image as presented to the ATCO/AFISO, it is implicit that the image is recorded with the same picture quaility as presented/used in the system (number of pixels, frame rate, etc.)

Our comment is as followed:

Recording with the same frame rate as the screen or camera (normally 25-30 fps) it seems unrealistic due to very high storage usage and traffic over the WAN. There is no gain in recording with such high frame rate when playback and verify, usually 5 fps. The minimal requirementin ED240 for video streaming is 1 fps.

response	Noted
	See the response to comment No 63.

comment	187	comment by: *AESA*

It would be useful to specify related requirements ATS.OR.450 (and GM1 ATS.OR.450) and ATS.OR.455, incorporated in Regulation (EU) 2017/373 through Regulation (EU) 2020/469 (in the same way that requirement ATS.OR.460 is mentioned at second to last paragraph of this section).
Regarding to this, is it planned to include a requirement/AMC/GM in Regulation (EU) 2017/373 about recording at these two points (through the wall and at the glass)?

In the second paragraph it's said: "For the particular case of remote aerodrome ATS, the recording and retention of data should therefore be extended to include constituents specific to remote aerodrome ATS […]", without any mention to the related specific requirements.

response	Noted.
	The ext after the quoted part in the comment provides details.

comment	215	comment by: *DTA/MCU*

Reference: 5.6 Voice and data recording

Initial text: The data recorded should be normally recorded at two points: — through the wall (data obtained from the sensors or through the network), — at the glass (operational screens recorded as seen by the controller, captured by a screen capture device).

Proposition: <mark>As far as practicable considering that this requirement is highly costly</mark>, the data recorded should be ~~normally~~ recorded at two points: (…)

Comment: Imposing to record data both at the glass and through the wall is very costly due to the large amount of data and technically difficult since systems currently in use or available are only capable to record at the glass data. The aim of imposing two points of data recording is not clearly explained (in particular why is it useful to record data directly from sensors) given the difficulties for ATS provider to comply with such guidance. At least it should be clearly acknowledged in the text

that two points of data recording are subject to proportionality regarding expected traffic and level of image quality (or other suitable criteria) allowing effective safety analysis.

response	Not accepted
	'Should' already means a (however preferred) option.

comment	*218*	comment by: *DTA/MCU*

Reference: 5.6 Voice and data recording

Initial text: When recording the image as presented to the ATCO/AFISO, it is implicit that the image is recorded with the same picture quality as presented/used in the system (number of pixels, frame rate, etc.).

Proposition: When recording the image as presented to the ATCO/AFISO, ~~it is implicit that~~ the image **may be** ~~is~~ recorded with the same picture quality as presented/used in the system (number of pixels, frame rate, etc.). **However, a lower frame rate for instance which don't impair data treatment for incident and accident report determined on a case-by-case basis could be acceptable.**

Comment: We don't understand why it is implicit that the image should be recorded with the same picture quality and frame rate as used in the system (number of pixels, frame rate, etc.). It is considered highly costly to implement such a solution. We consider that a lower frame rate determined on a case-by-case basis could be possible.
Moreover, since a recommended quality is not specified in the document, the definition of the quality by the ATS provider could be based on the lowest frame rate only to lower the cost induced by the huge amount of data to storage.

response	Noted
	See the response to comment No 63.

comment	*260*	comment by: *European Transport Workers Federation - ETF*

Delete : "Note that ATS.OR.460 of Regulation (EU) 2017/373 [4] stipulates recording of background communication and aural environment at ATCO/AFISO workstations (and retention of the last 24 hours of operation), unless otherwise prescribed by the competent authority. With a fulfilment of ATS.OR.460, it is likely that the aerodrome sound reproduction will be recorded/captured inherently. »

This is not based on any evidence and is promoting the use of a recording system which is not designed for this purpose.

ETF requests to delete.

response	Not accepted
	The text does not promote the use of a system for a specific purpose, but simply pointing to the possibility.

comment	*279*	comment by: *LFV*
	Chapter 5.6; With the inclusion of the new last sentence of the 2nd paragraph (including the two bullet points), the text in the 3rd paragraph (starting with 'With reference to the above, it is recommended that..' and ending with '…to support an effective accident and incident investigation.') has become superfluous and would be better deleted.	
response	Not accepted	
	The paragraph further elaborates on the preceding text in order to aid understanding.	

5.7.2. Management of other aerodrome assets   p. 44

comment	*212*	comment by: *ENAIRE*
	Reference to cost bearing between airport and ANSP only in this particular point does not seem to fit in the guide, as it is the only reference in the document. We therefore suggest to delete <<operating, and cost bearing of such assets>> in page 45.	
response	Not accepted	
	This addition is based on the consensus of the RMG.	

comment	*280*	comment by: *LFV*
	Chapter 5.7.2, last sentence; Proposed amendment: ~~If the aerodrome concerned is part of a multiple-mode remote aerodrome ATS installation, particular attention should be paid to interdependencies that may exist between different locations and systems.~~ (Remove sentence) Justification: The topic is already covered by Ch 5.13.2 (recommendations related to multiple are contained in Ch 5.13). It seems this sentence does not add anything more of value. And if this sentence would stay, there would be a need to have similar sentences also for 5.7.1, 5.8, etc..	
response	Not accepted	
	This addition is based on the consensus of the RMG.	

5.8.1. Remote aerodrome ATS equipment used for MET observation purposes   p. 45

comment	*26*	comment by: *GdF*

in that ~~Ss~~ection shall be

response	Accepted

The text has been updated.

comment	*61*	comment by: *GdF*

Requirements also apply ~~also on~~ to the MET observer role of ATCO/AFISO.

Agree with the content.

response	Accepted

The text has been updated.

comment	*64*	comment by: *Saab AB*

As stated, Metrological Observations is not an ATS task, however many ATS-units performs the role of Aeronautical Metrological Station out of necessity.
At the same time the Aerodrome control tower or AFIS unit shall ensure that they have access to the same sensor information as the Aeronautical Metrological Station and any manual or backup procedures specified in the MET.TR.200-210 would in practice apply to the ATS-provider and subsequently put requirements on the technical systems used to provide remote aerodrome ATS.
We would recommend that the GM more strongly recognized the dependency between provision of ATS-services and the tasks allocated to the Aeronautical Metrological Station, and if possible include recommendations and best practices from implementations in operational used around in Europe.

response	Not accepted

The issue the comment refers to is not specific to remote aerodrome ATS.

comment	*283*	comment by: *LFV*

Chapters 5.8.1, 6.3 and 6.5.2;
These chapters contains several instances of the word 'shall' (without any regulatory reference) – which is not allowed for GM?

response	Partially accepted

See the response to comment No 284.

5.8. Meteorological information   p. 45

comment	*145*	comment by: *IFATCA*

"Meteorological service is not an ATS task; it is, therefore, out of scope of remote aerodrome ATS…"

comments from a global perspective:

This is NOT true in the US. There are Limited Aviation Weather Reporting Station (LAWRS) – A facility where observations are taken, prepared, and transmitted by NWS certified FAA control tower personnel on a limited basis to support aviation requirements. This would not be out of scope in the US.

response	Noted
	This GM is an EU document.

comment	225	comment by: *European Cockpit Association*
	Regarding MET information: for remote towers located (far) away from the airport it is perhaps wise to incorporate some sort of reasonable check or backup system to ensure the reported MET information is correct.	
response	Noted	
	The correctness of the received information is not restricted to MET data.	

comment	239	comment by: *Norwegian Air Traffic Controller Association*
	We disagree with the statement "Meteorological service is not an ATS task; it is, therefore, out of scope of remote a erodrome ATS…" as in Norway a majority of the weather observation and METAR work is done by an ATCO/AFISO.	
response	Noted	
	Performing MET observation does not become an ATS task when it is done by an ATCO/AFISO.	

comment	250	comment by: *German NSA (BAF)*
	• "access to relevant meteorological information in accordance with requirement MET.OR.242(a)63 of Regulation (EU) 2017/373"	
	The reference should be ATS.OR.515 instead of MET.OR.242(a). There is no difference in the meteorological requirements in these provisions. But ATS.OR.515 fits better as it is addressed to the ATS provider which is the subject of the NPA.	
response	Accepted	
	The text has been updated.	

5.10. Technical architecture , interdependencies and redundancy aspects	p. 46

comment	27	comment by: *GdF*

Introducing the aspect of interdependency is a very good idea. Additionally, please see comments to Chapter 9.

response	Noted

comment	28	comment by: *GdF*

proposed comma:

include, but are not limited to

response	Accepted The text has been updated.

comment	65	comment by: *Saab AB*

The amended text in section 5.10 specifically addresses the potential interdependencies between ATS units (aerodromes) in one RTC, and in doing so high lights one aspect of the overall capacity of the Air Traffic System of the member state. The recommendation addresses the state or competent authority to either regulate, or through other means steer the ATS provider, in doing so missing the role of the Aerodrome Operator. In a competitive market, the ATS provider shall comply with all applicable regulations as well as the contractual commitment towards the Aerodrome Operator. As required by ADR.OR.C.005(b) the Aerodrome Operator, as the procuring entity, is responsible to state the level of air navigation services appropriate to the level of traffic and the operating conditions at the aerodrome.
Without the overarching context and especially the relation towards the Aerodrome Operator, the recommendation is misleading.

response	Not accepted. The comments are not connected to remote aerodrome ATS in itself. It is correct that the state and aerodrome operators have a responsibility with regard to the level of ANS required. This in itself is not connected to remote aerodrome ATS and therefore outside the scope of the GM, which only addresses the specific points connected to remote aerodrome ATS (such as the interdependencies that can be present in a RTC).

comment	205	comment by: *European Cockpit Association*

ECA very much welcomes the added text and regards this as essential to be reflected in the regulation or AMC.   Additional contingency measures could include: pilot-controlled aerodrome/runway/approach systems, i.e. possibility for activation of approach/runway lights via VHF in case ATS becomes unavailable.

response	Noted. Future/experimental systems are intentionally left out of the GM.

comment	*281* comment by: *LFV*
	Chapter 5.10; In regards to interdependencies – it might be an advantage not to govern which measures that might be taken in order to show acceptability in regards to interdependencies. If the last list is taken out, it will be considered a more broad way of showing acceptability. There are numerous situations where there are advantages with different "set-up" and equally situations where there are negative outcome of some dependencies. Just to mention two measures seems very vague and therefore it is desired that the list is withdrawn. Comment on the text 'Member States and competent authorities are advised to assess the acceptability of the level of interdependencies…' (in the last paragraph) – Member States are not listed as stakeholders in Ch 1.1.
response	Partially accepted Member States have been added to the list. Note that the list is not considered to be exhaustive; it instead suggests two measures that may be considered when required. Each scenario needs to be assessed on a case-by-case basis.

comment	*208* comment by: *European Cockpit Association*
	Comment regarding sections 5.10 and 6.7.2: Ensured availability of aerodromes with independent ATS. In regions with several RAATS units served by a single RTC, Member States and ATS providers should ensure a suitable geographical distribution of aerodromes with independent ATS that may serve as protected alternates in the event of an RTC failure affecting all RAATS units in that region. Consideration should be given to potentially longer distances between aerodromes with remote ATS provision and aerodromes with independent ATS, including increased fuel costs, emissions, etc. for affected airspace users planning with alternates with independent ATS. "The objective of the ATS provider should be to allow availability of a suitable level of aerodrome ATS at an alternate." Comment: criteria for availability of alternate aerodromes with independent ATS provision should be set in coordination with relevant parties, i.e. airspace users, ICAO and other stakeholders. A requirement for such availability may be subject to other contingency measures. This should be added in regulation or AMC with some clarification of "suitable level of aerodrome ATS at an alternate." Proposed amendment: "The objective of the ATS provider should be to ensure availability of independent ATS at an alternate aerodrome within a suitable distance of an aerodrome with remote ATS provision."

"Part of this consultation could include the contingency planning for the services provided." should be part of regulation or AMC, and amended as follows "Part of this consultation **shall** include the contingency planning for the services provided."

There may be a risk involved when an airspace user is not familiar with an aerodrome with remote ATS provision and does not operate there regularly. In that case discussions, workshops, etc. will not have any mitigating effects. For example, cargo or corporate operators with no fixed network can not be expected to join in this kind of information sharing all over the world. There must be a way to indicate that an aerodrome has remote ATS provision, that everybody can easily recognise. This must include any interdependencies. Suggestion: Adding (interdependent) RAATS as a criteria for Cat B airports?

response	Noted
	See the response to comment No 240.

5.11. Technical supervision   p. 47

comment	*188*	comment by: *AESA*
	Is there any guidance material to perform this classification? And to establish the failures severity? Or is it left to the ATS provider or even the monitoring function sotware developer criteria?	

response	Noted
	Classification is system dependent; no general guidance can be given. Also, it is beyond the scope of the GM as this is not specific to remote aerodrome ATS.

5.12. Working environment   p. 48

comment	*29*	comment by: *GdF*
	stress, mental strain, etc.~~.~~ A poor working	
	If the word "etc." appears at the end of a sentence, then the period (which is part of etc.) serves as the final punctuation mark. Readability should not be impaired due to the following uppercase "A", if you are worried about that.	

response	Accepted
	One full stop has been removed.

comment	*30*	comment by: *GdF*
	Aspects to consider may e.g. be number of input and output devices limited to a minimum, adaption	

Proposal: Aspects to consider may be limiting the number of input and output devices to a minimum, adaption...

response	Accepted
	The text has been updated.

comment	75	comment by: *Avinor*

Comment to 5.12. Working environment - footnotes:
We suggest that the ISO standard "ISO 9241 Ergonomics of human-system interaction" could be referred to as a whole (instead of referring to specific parts). We also suggest to add the ISO standard "ISO 11064 Ergonomic design of control centres".

Justification: All the parts of the ISO 9241 are relevant. Also we have found the ISO 11064 to be relevant when establishing a Remote Tower Centre.

response	Accepted
	The ISO standards list has been updated.

comment	245	comment by: *German NSA (BAF)*

Have medical requirements been taken into consideration, e.g. the distant vision requirements in a remote environment?

response	Noted
	See the response to comment No 242.

comment	246	comment by: *German NSA (BAF)*

Are there guidelines on how big the room must be and how much workstations should be allowed?

response	Noted.
	This should be part of the assessment described. It has to be noted that a relatively short section in a GM document cannot reflect all possible scenarios; it rather gives general guidance.

5.13.1. Procedural considerations in multiple mode of operation   p. 49

comment	99	comment by: *Europe Air Sports*

5.13.1.2, last para (page 50)

Call sign of vehicles at different but simultaneously served aerodromes:

we propose to use the name of the aerodrome, if suitable in an shortened form, to maintain situational awareness, e.g. Røst 01 for the aerodrome of Røst (ENRS), Berly 01 for the aerodrome of Berlevag (ENBV). We think special attention must be paid to the RFFS vehicles.

Rationale: The use of aerodrome names increases the situational awareness of the ATC staff and addresses directly those on ground at the aerodrome concerned.

response	Accepted

The text has been extended with the suggestion.

comment	*189*	comment by: *AESA*

The recomendation to consider the introduction of different call sign/number series for the vehicles at the respective aerodrome, may not be enough to prevent mistakes. The implementation of some kind of visual sign in the corresponding visual presentation device, clearly identifying the aerodrome from which the comunication is comming should be recomended. (Applicable to paragraph 5.13.1.2).

response	Accepted

The text has been extended with the suggestion.

comment	*247*	comment by: *German NSA (BAF)*

Split aerodromes in order to isolate the aerodrome with the abnormal/emergency situation on
an RTM dealing with only this issue.

Is standby of personnel necessary just in case of abnormal/emergency situation?

response	Noted

This should be determined during the local emergency measures planning.

comment	*31*	comment by: *GdF*

proposed commas:

aerodromes separately, or may choose

from different aerodromes, as well as

response	Accepted

The commas have been added.

5.13.6. Work environment in multiple mode of operation   p. 52

comment	190	comment by: *AESA*

It should be carefully evaluated if multiple mode of operation is to be maintained if one or more of the connected airports to one RTM are working under LVP conditions.

response	Not accepted

This is not a working environment issue. It shall be part of the overall local safety assessment.

6.1.1. Prior to making the decision: assessing the impact   p. 53

comment	32	comment by: *GdF*

proposed commas:

most affected, but other workers can

for implementation, including milestones

response	Accepted

The commas have been added.

---

comment	91	comment by: *Civil Aviation Authority the Netherlands*

Question: related to which existing regulatory requirements is it possible for the supervisory and competent authority to require such an impact assessment document?

response	Noted

No regulatory requirement exists that requires an impact assessment as described in Section 6.1.1. However, it could be a beneficial measure and if the decision is taken to conduct one, the GM provides some guidance on how to prepare it.

---

comment	100	comment by: *Europe Air Sports*

6.1.1. Prior to making the decision…

Page 53/108
Mid-page: [potentially crossing borders]. We propose to write "national borders".
Rationale: This would add to the clarity required, in our view, if the national borders are meant.

response	Not accepted

The text reads 'potentially crossing borders to places with different labour standards' which could mean internal borders too e.g. in a federal state.

---

comment	*213*	comment by: *ENAIRE*

In page 53 explicit mention of potential additional staff (ATCO/AFISO and ATSEP) needs could be included. We therefore suggest to add <<Increase activity, even additional staff (ATCO/AFISO and ATSEP) may be need during validation and transition activities (including unit training) to provide service from conventional and remote dependencies>>.

response	Not accepted

It is not foreseen that remote aerodrome ATS introduction will cause an increase in needed personnel.

comment	*263*	comment by: *European Transport Workers Federation - ETF*

In regards to multi-mode operations: "This is usually achieved by an increase of ATCO/AFISO productivity…"

Multi-mode operations pose a large increase in safety risk. Productivity should never be aimed at when affecting safety.

response	Noted

Keeping the safety level is the foremost priority in any ATM system change including the introduction of remote aerodrome ATS. The driver is however often economy. The two statements do not contradict each other.

comment	*264*	comment by: *European Transport Workers Federation - ETF*

"The implementation of the technology may not always result in relocation, and so may not be factored in as a social impact; however, the below areas **may** still need to be considered when deciding on the introduction of remote aerodrome ATS operations"
The implementation of remote ATS operations has a (usually) strong social impact, especially on ATCOs but also on ATSEPs. Therefore, ETF requests to strengthen the need to conduct a social impact assessment even without relocation, changing the "MAY" into a "SHOULD".

Rewording : "The implementation of the technology may not always result in relocation, and so may not be factored in as a social impact; however, the below areas **should** still need to be considered when deciding on the introduction of remote aerodrome ATS operations"

response	Not accepted

Socio-economic factor considerations are not strictly technical and included in the GM only as a possible option.

comment	265	comment by: *European Transport Workers Federation - ETF*
	« In the social dialogue, affected parties could identify additional mitigating measures of financial and logistic nature to facilitate a socially smooth transition." Not only these but working conditions and working time measures may also be applicable.	
response	Noted 'Financial and logistic' cover working conditions and times as well.	

6. Management of change   p. 53

comment	146	comment by: *IFATCA*
	In regards to multi-mode operations: "This is usually achieved by an increase of ATCO/AFISO productivity…" Multi-mode operations pose a large increase in safety risk. Productivity should never be stated over safety. There doesn't seem to be any formal safety assessments conducted for multi-mode operations.	
response	Noted See the response to comment No 263.	

comment	261	comment by: *European Transport Workers Federation - ETF*
	ETF supports the initiative of addressing socio-economic factors in the frame of the management of change (6.1) as well as the social aspect during transition phases (6.3.3). Even if this choice should have been done from the very beginning of EASA's involvement on remote ATS operations. However, wouldn't it be clearer to reference §6.3.3 in a new § 6.1.3, as §6.3.3 deals more with socio economic factors than with human factors?	
response	Accepted The content of Section 6.3.3 has been moved to a new Section 6.1.3.	

6.1. Addressing socio-economic factors   p. 53

comment	156	comment by: *IFATCA*
	We would like to praise EASA for including this chapter to the guidance be it a bit late as many ANSPs are past this stage in implementation.	

response	Noted

comment	*191*	comment by: *AESA*

Maybe this chapter could be placed after the "safety assessment" or in a separate point previous to point 6, Management of change. Even though socio-economic factors may be the main driver to implement the change, the focus should be placed in the "safety assessment" and placing this topic in the first place may be misleading.

response	Noted

Several placements were considered during the RMG work for the socio-economic section, each showing some advantages and disadvantages. The current placement was found to be optimal (however not ideal – which could not be achieved).

comment	*192*	comment by: *AESA*

NPA 2022-02 (A) indicates that all aspects (including socio-economic factors) should be taken into consideration to ensure safe implementation of RATS. However, the interdependecies between safety and socio-economic factors are not directly explained in the guidance material.

response	Noted

All aspects relevant to safety shall be considered during the safety assessment.

comment	*237*	comment by: *Norwegian Air Traffic Controller Association*

We would like to praise EASA for including this chapter to the guidance be it a bit late as many ANSPs are past this stage in implementation.

response	Noted

comment	*262*	comment by: *European Transport Workers Federation - ETF*

ETF supports the iterative process introduced for assessment of the implementation of remote ATS operations. The double impact assessment (before/after) is clearly a key for a better implementation.

response	Noted

6.1.2. After making the decision: checking the relevance of the initial assessment   p. 54

comment	*33*	comment by: *GdF*

proposed comma:

	consider, which again may
response	Accepted The comma has been added.

comment	34	comment by: *GdF*

Change in cost of living or higher cost of living versus other operations, but no increase in renumeration for affected staff...

Do not understand, especially "renumeration". Please explain or rephrase.

response	Accepted The typo has been corrected.

comment	137	comment by: *HungaroControl*

~~Renumeration~~ typo, correct spelling is remuneration.
Consider revising, as this word may not be widely known. Alternatives might be financial compensation, salary, reward?

Change in task allocation (multiple validations)- what does it mean exactly in this context (i.e. to make the right choice of remote tower location)? What is the connection between changes in task allocation and the location of the RTC? What does the multiple validations in the brackets stand for? Please expand on the rationale for bringing this up in this subchapter.

response	Accepted First comment: See the response to comment 34. Second comment: explanatory text has been added.

comment	266	comment by: *European Transport Workers Federation - ETF*

"Change in cost of living or higher cost of living versus other operations, <u>but no increase in renumeration for affected staff as</u> <u>still providing same role</u> — this could impact staff willing to transition and affect longer term retention of staff "
This underlined phrase suggests that staff moving from a conventional tower to a remote one/RTC <u>always</u> "provide same role" and therefore that no increase in remuneration should/could occur. It is not proven and anyway if it were, it couldn't be considered as a general case.

In fact, it is possible that the staff provides the same role, but it is also possible that given the remote operation, requirements evolve, especially in the case of the implementation of a RTC where staff should hold multiple endorsements. Furthermore the question staff's remuneration should probably be addressed.

As the assertion could mainly be misunderstood and that it adds nothing to the idea developed in this part, ETF asks for a rephrase as suggested.

Rephrase suggestion : "Change in cost of living or higher cost of living versus other operations may occur upon the introduction of remote ATS operations. This could impact staff willing to transition and affect longer-term retention of staff and should be mitigated. "

response	Not accepted
	The section lists possible negative effects. Changing it would remove the negative nature of the issue.

6.2. Safety assessment   p. 55

comment	*35* comment by: *GdF*
	...the concept of remote aerodrome ATS require**s** some specific...
response	Not accepted
	The subject of the sentence under discussion is 'particularities'. In order to have subject-verb agreement, the verb needs to be in plural.

comment	*147* comment by: *IFATCA*
	"Implementation of remote aerodrome ATS is a change to the functional system and, as such, it does not require any specific safety assessment."

Each new remote tower system must undergo a technical safety assessment as well as a safety assessment in each unique aerodrome environment. One system certified at one airport (single runway) does not mean it can or should be used at an airport with multiple runways. |
| response | Partially accepted |
| | Moving from conventional to remote aerodrome ATS provision is considered and needs to be managed as a change to the functional system, as described in Section 6.2. The text of the section has been amended to further clarify this principle. |

6.3. Human factors assessment   p. 57

comment	*36* comment by: *GdF*
	proposed comma:

task context, allowing the |

response	Accepted
	The text has been updated.

comment	*37*	comment by: *GdF*

,while workshops have also a multiple purpose, dependent on the timing of their use.

propose: ,while workshops can have multiple purposes, depending...

response	Accepted
	The text has been updated.

comment	*89*	comment by: *Civil Aviation Authority the Netherlands*

In the last paragraph "passive, activa and advanced shadow mode validations" are mentioned. In the footnote nr. 77 the description of active shadow mode is amended and there is no longer a description of advanced shadow mode. Should the term 'advanced shadow mode' also be removed from the main text?

response	Accepted
	The text has been updated.

comment	*138*	comment by: *HungaroControl*

The assessment of human factors aspects should be carried out through various means, such as workshops, simulations, passive, active and **advanced shadow mode** validations-

The advanced shadow mode has been already removed from the footnotes, it should be removed from the main text as well.

response	Accepted
	See the response to comment No 89.

comment	*193*	comment by: *AESA*

In the last paragraph remains "passive, active and advanced shadow mode validations", but according to foot note 77, it should be "passive and active shadow mode validations".

Regarding this, it would be appropiate to integrate de foot note 77 in the paragraph itself, because of the importance of the information that contains.

response	Noted

Consistency between the text and the footnote has been ensured, by referring to 'active shadow mode', as appropriate.

comment	194	comment by: *AESA*

Regarding active shadow mode, further elaboration or guidance is needed in relation to the training and licensing scheme for that validation mode.

According to the new definition of active mode validation, is a remote tower unit endorsement needed to provide ATS service in that validation phase? What kind of training and license (unit endorsement) is required to provide ATS service in active shadow mode validation?

response	Noted

This will depend on the set-up of the project, just like when moving from one conventional TWR to another one. If the RTC is actually conducting service, then at least a temporary endorsement is required. But if the RTC is only shadowing while the conventional TWR is conducting the service, then the RTC should not need any endorsement, it does not even have to be an ATCO sat in the seat as all they are doing is watching, not acting. But this all depends on the type of shadowing and needs to be managed in each project.

comment	195	comment by: *AESA*

According to the update of shadow modes validation (section 6.3), it would be useful to have more detailed information about its relationship with the transition from conventional tower to a remote tower.

Section 6.5.1 hasn't been updated, including further explanation.

response	Not accepted

Shadow mode validations are one methodology used to validate the concept and perform a human factors assessment; it does not target the transition phase but the development.

comment	217	comment by: *ENAIRE*

It is understood that reference in footnote 77 to advanced shadow mode has been removed for simplicity of the operation. We agree as it may be difficult to manage both systems running in parallel in active mode. Accordingly, advanced should also be removed from the text by deletin the phrase <<passive and, active and advanced shadow mode validations[77]>>.

response	Accepted

See the response to comment No 89.

comment	282	comment by: *LFV*

Chapters 5.8.1, 6.3 and 6.5.2;
These chapters contains several instances of the word 'shall' (without any regulatory reference) – which is not allowed for GM?

response	

Partially accepted

See the response to comment No 284.

6.3.1. Remote-aerodrome-ATS-related human factors elements/aspects   p. 58

comment	38	comment by: *GdF*

proposed commas:

assessments, including the following

caused my glare, e.g. during

concerned, particularly when

(if used, e.g. during

response	

Accepted

The commas have been added.

comment	71	comment by: *DFS Deutsche Flugsicherung GmbH*

The NPA requires: "The human factors assessment shall be led by a human factors specialist."

While strongly supporting the necessity of the assessment of the related human factors (including HMI, working environment, procedures, transition, …) before implementing a remote aerodrome ATS, DFS wants to make sure that the requirement cited above can be interpreted in a way that

- a trained and experienced safety assessment expert can also have the required human factors specialist skills

and that

- the integration of the human factors assessment with the safety assessment is possible in one assessment and one document – provided a suitable method is used, which can cover HF

response	

Partially accepted

> Explanatory text has been added before Section 6.3.1. 'Should' has been used instead of shall'.

comment | *72* | comment by: *CANSO*

The NPA requires: "The human factors assessment shall be led by a human factors specialist."

While strongly supporting the necessity of the assessment of the related human factors (including HMI, working environment, procedures, transition, …) before implementing a remote aerodrome ATS, CANSO wants to make sure that the requirement cited above can be interpreted in a way that

- a trained and experienced safety assessment expert can also have the required human factors specialist skills

and that

- the integration of the human factors assessment with the safety assessment is possible in one assessment and one document – provided a suitable method is used, which can cover HF

response | Noted

See the response to comment No 71.

comment | *73* | comment by: *Avinor*

Comment to 6.3.1 Remote-aerodrome-ATS-related human factors elements/aspects, new bullet points no. 8-11:
We suggest to keep the original text for the elements regarding reliability, availability, integrity and accuracy of the visual presentation.

Justification: There are no common understanding or guidance related to how an ANSP could measure acceptability and trust in these elements. In our experience it is still possible to measure these elements during the project phase but only to some extent and that it needs to be followed-up in transition and operations with more time and experience gained with the real system.

response | Partially accepted

The text has been refined.

comment | *78* | comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

6.3.1. Remote-aerodrome-ATS-related human factors elements/aspects
AND

6.3.2. Additional human factors elements/aspects related to multiple mode of operation
pg 58-63

Rationale: R-ATS aerodrome introduces new ATCO/AFISO human factors accepts that need to be addressed, especially when thing are not running as normal. Degradation of technological system and its contingency procedures as well as any operational contingency procedures need to be considered within the human factors element.
Text change:
6.3.1
Add text under: Additionally, the human factors assessment needs to consider some aspects of procedural and other nature, not necessarily related to the replacement of direct visual observation. At least the following aspects should be taken into account:
- local procedures related to the contingency plans in case of partial, single and or multiple failure at the RTC.
6.3.2
Change text under Procedural and other aspects:
-specific requirements needed for safety reasons, such as extended spacing (if used e.g. during a transition/start-up phase following implementation) and other operational procedures and contingency procedures.

-fall-back and system degradation procedures and operational contingency procedures in case of significant degradation or interruption of its operations.

response	Accepted
	The text has been updated.

comment	*223*	comment by: *ENAIRE*
	New maintenance procedures and procedures in case of failure or degradation of the visual surveillance system should be assessed from the HF perspective. The reference has been removed from page 59, but it should be included with the rest of procedures to be assessed, as done in section 6.3.2. We therefore suggest to add additional text <<maintenance procedures; procedures in case of image integrity failure; fall-back and system degradation procedures;>>.	
	Moreover coordination procedures between ATS and maintenance personnel (ATSEP) should be reviewed to cover on-site and off-site incidences on visual surveillance system. We therefore suggest additional text <<local procedures for the coordination between the ATS unit and ATSEP personnel>>.	
response	First comment: not accepted	
	The elements are still there; they have been only moved from technical elements to procedural elements.	
	Second comment: accepted	
	The text has been updated.	

comment	*285*	comment by: *LFV*

Chapter 6.3.1
Editorial comment (mid p.59): The new proposed text "Other technical elements specific to local implementation" is meant to be a separate bullet point, i.e. the last bullet point in the list of 'technical elements'. Proposed amendment (top p.60): 'combining video images ~~from different sources~~ **of different types**, such as visual cameras, infrared cameras, etc.;' Justification: This bullet is intended to target video images of different types. Video images from different sources is already covered by the bullet starting with 'potential confusion over...'.

response	Accepted

The text has been updated.

6.3.2. Additional human factors elements/aspects related to multiple mode of operation   p. 61

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comment	*79*	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

6.3.1. Remote-aerodrome-ATS-related human factors elements/aspects
AND
6.3.2. Additional human factors elements/aspects related to multiple mode of operation
pg 58-63

Rationale: R-ATS aerodrome introduces new ATCO/AFISO human factors accepts that need to be addressed, especially when thing are not running as normal. Degradation of technological system and its contingency procedures as well as any operational contingency procedures need to be considered within the human factors element.
Text change:
6.3.1
Add text under: Additionally, the human factors assessment needs to consider some aspects of procedural and other nature, not necessarily related to the replacement of direct visual observation. At least the following aspects should be taken into account:
- local procedures related to the contingency plans in case of partial, single and or multiple failure at the RTC.
6.3.2
Change text under Procedural and other aspects:
-specific requirements needed for safety reasons, such as extended spacing (if used e.g. during a transition/start-up phase following implementation) and other operational procedures and contingency procedures.

-fall-back and system degradation procedures and operational contingency procedures in case of significant degradation or interruption of its operations.

response	Noted

See the response to comment No 78.

comment	101	comment by: *Europe Air Sports*
	6.3.2, Technology elements, page 61	
	Take into account different lighting conditions depending on the time of year, e.g. sun is low on the horizon in winter.	
response	Not accepted	
	This should be covered by image quality factors.	

comment	102	comment by: *Europe Air Sports*
	6.3.2. Additional human factors elements/aspects related to multiple mode of operation, page 62	
	2nd bullet on page 62: Distributed attention This is a large concern. In our view the very careful selection of persons capable to tackle such new challenges is of utmost importance to maintain the current level of safety. One open point: Should experienced persons be selected or newcomers, particularly when "multiple mode" ops are adressed?	
	Rationale: Up to now ATC staff could concentrate on ONE situation, btu now we expect them to deal with several of them, at different locations.	
response	Noted	
	ATCOs have already to deal with several situations today, e.g. an aircraft calling in for landing, an aircraft calling for taxiing a vehicle, etc. This should be dealt with using a human factors assessment.	

comment	229	comment by: *European Cockpit Association*
	ECA would like to point out that the pilot perspective, when potentially listening to communication at other airports, has not been thoroughly addressed. Information in the AIP on this major change, including phraseology issues, is not adequate.	
response	Noted	
	Potential human factors elements deriving from simultaneous communications in the multiple mode of operation have been identified and listed in Section 6.3.2. EASA expects that the local implementation would provide suitable technological solutions supporting safe operations also in multiple mode. Publication of special arrangements in the national AIP is instrumental to pilot awareness.	

comment	286	comment by: *LFV*
	Chapter 6.3.2 Incorrect placement of the three last bullets (- procedures in case of image integrity failure; - maintenance procedures; - fall-back and system degradation procedures),	

they are not specifically related to multiple. They should instead be placed in the 'procedural and other nature' segment in 6.3.1.

response	Partially accepted
	These have not deleted from Section 6.3.2, but they have been copy-pasted in Section 6.3.1 as well.

6.3.3. Social aspects to consider during transition to remote aerodrome ATS   p. 62

comment	*261* ❖ comment by: *European Transport Workers Federation - ETF*
	ETF supports the initiative of addressing socio-economic factors in the frame of the management of change (6.1) as well as the social aspect during transition phases (6.3.3). Even if this choice should have been done from the very beginning of EASA's involvement on remote ATS operations.
	However, wouldn't it be clearer to reference §6.3.3 in a new § 6.1.3, as §6.3.3 deals more with socio economic factors than with human factors?
response	Noted
	See the response to comment No 261.

6.4. Involvement of users   p. 63

comment	*67* comment by: *Saab AB*
	As these topics of the changes in section 6.4 and 8 are closely related we provide the same comment to all of those amendments.
Recognizing that the need for an transparent approach to change management, and for ATM/ANS providers to provide other stakeholder with insight to the safety assessment and sharing a common view on dependencies, assumptions and risk mitigation is not only required by ATM/ANS.OR.A.045, but also important for the affected stakeholders in order for them to comply with their requirements in turn.
The recommendations goes beyond this point and encourage involvements in the decision, development and implementation phases. This approach creates a set of problems as
the phases referenced are not clearly defined,
airspace users are not a homogenous group, and
this approach does not recognize the role of the Aerodrome Operator as the procuring entity of ATM/ANS. In a competitive market the Aerodrome Operator procure the ATM/ANS providers and in doing so set the boundaries of the ATM/ANS services, on a time limited contract.
	We would recommend that the RMT and EASA amend the recommendations and to the extent possible encourage ATM/ANS providers together with Aerodrome Operators to utilize the communications channels already established (besides the

consultation process of ATM/ANS.OR.A.075) f.i. IAIP and the Local Runway Safety Team required AMC1 ADR.OR.D.027(b) as a part of the Aerodrome Safety Programme.

response	Partially accepted
	The text of Section 7.1.3 has been amended to reflect the existing obligations for the ATS provider (Regulation (EU) 2017/373) and the aerodrome operator (Regulation (EU) No 139/2014) to coordinate concerning activities, services, and data and information exchanges. In this context, it is left to the involved parties to identify suitable arrangements for such coordination in the context of the remote aerodrome ATS. This could include, for example, the local runway safety team if considered appropriate.

comment	*103*	comment by: *Europe Air Sports*
	6.4 Involvement of users, page 63:	
	Please remember to involve also non-commercial General Aviation as well as sports and recreational aviation including the model flying community.	
response	Not accepted	
	They are under the cluster of airspace users.	

comment	*157*	comment by: *IFATCA*
	6.4. It is very good that this is entered into the guidance, but as the rollout of RT systems in Europe is progressed, this is too late for many fo the stakeholders.	
response	Noted	

comment	*158*	comment by: *IFATCA*
	Editorial involvement by users ?	
response	Not accepted	

comment	*238*	comment by: *Norwegian Air Traffic Controller Association*
	It is very good that this is entered into the guidance, but as the rollout of RT systems in Europe is progressed, for many of the stakeholders it's a little too late.	
response	Noted	

comment	*267*	comment by: *European Transport Workers Federation - ETF*

It is very good that this is entered into the guidance, but as the rollout of RT systems in Europe is progressed, this is too late for many of the stakeholders.

response	Noted

comment	*268*	comment by: *European Transport Workers Federation - ETF*

"During the implementation phase, as part of the management of change, the ANSP should ensure the coordination with its personnel, (…) For this purpose, a dedicated group with ANSPs affected personnel involved **could** be set up."
It SHOULD be set up. "Involving affected staff and their representatives at all steps of the project" is a priority for ETF, in order to ensure a realistic and agreeable approach of the implementation.

Rephrase proposal : "For this purpose, a dedicated group with ANSPs affected personnel involved **should** be set up."

response	Not accepted

What should be done is coordination. One form could be what is written. The GM should not be restrictive in this respect.

6.5. Transition/implementation plan   p. 64

comment	*226*	comment by: *ENAIRE*

It would be useful to include other aspects of the transition/implementation process common to single and multiple mode of operation. Additionall, there are aspects related to multiple mode of operations that may be addressed in this section.
We therefore propose that the scope of this section should include other aspects of the transition/implementation process for single and multiple mode , such as:
- Validation activities (shadow mode, life trials, etc.) during implementation prior to training and cutover.
- OJTI training activities, preOJT (based on simulation training devices STD), OJT
- Validation of all combination of aerodromes in the RTM
- Implementation strategy for multiple aerodromes: cross training between aerodromes, training on incremental combinations (2-3 aerodromes).

response	Noted

These aspects are very specific and beyond the scope of general guidance that is the aim of the document.

6.5.2. Migration from a conventional tower to a remote contingency tower   p. 65

comment	*39*	comment by: *GdF*

Reverting back the ATS from the remote contingency facility to the conventional tower

Propose:
Reverting the provision of ATS back from the remote ...

response	Accepted
	The text has been updated.

comment	284	comment by: *LFV*
	Chapters 5.8.1, 6.3 and 6.5.2; These chapters contains several instances of the word 'shall' (without any regulatory reference) – which is not allowed for GM?	
response	Partially accepted	
	Instances where 'shall' does not refer to regulatory requirements have been changed.	

6.6. Information and cyber security cybersecurity　　　　　　　　　　　　p. 66

comment	248	comment by: *German NSA (BAF)*
	How could you assess the level of cybersecurity outside of risk assessments and how is it defined?	
response	Noted	
	Cybersecurity rules applicable to ATM are applicable to remote aerodrome ATS, hence the GM is only a general reminder of that.	

6.7. Contingency planning and degraded mode procedures　　　　　　　　p. 67

comment	140	comment by: *DTA/MCU*
	1/ Reference to: With regard to remote aerodrome ATS, the contingency and degraded mode procedures should be adapted/designed to the specific local conditions and the specific technical architecture/design, taking into consideration elements such as: — the use of ~~signal lights~~ light signal and emergency flares; Comment: the vocabulary mentioned both in GM1 ATS.OR.445(a) (IR 2017/373) and AMC1 ADR.OPS.B.031(b)(4) (IR 2014/139) should be used. 2/ Reference to: Events related to other system aspects, including loss/degradation of:	

(...)
— ~~signal light gun~~ signalling lamp;

Comment: the vocabulary mentioned in CS ADR-DSN.K.500 (IR 2014/139) and 5.1.3 ICAO Annex 14 Volume I should be used.

response | Accepted

The text has been updated.

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comment | *206* | comment by: *European Cockpit Association*

Proposed amendment for clarification of item no. 4 (the management of existing traffic in the scenario of major or complete failure).

Add as regulation or AMC.
- the management of existing traffic in the scenario of a major or complete failure of a single remote tower unit
- the management of existing traffic in the scenario of a major or complete failure of a remote tower centre

response | Accepted

The text has been updated.

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comment | *287* | comment by: *LFV*

Chapter 6.7;
Having contingency plans available is well recognized, however it should be noted that in relation to an occurrence, it is likely that the combination of several contingency measures is successful why it might be worthwhile to introduce to the guidance that this is one of the key issues when building a resilient functional system. By giving thought to resilience one also avoid the possible introduction of brittleness to a system when only being prepared for a certain number of identified occurrences – and not for any unlikely events that may occur.
The sentence including spare RTM is suggesting associated staff – it is somewhat in contradiction to the economic concept of RTC. It is suggested to leave the wording associated staff out. A spare RTM may be a part of contingency if one chooses this anyway (without staff).

response | Not accepted

The newly added sentence only proposes consideration of the need for spare RTM and its staff, not prescribing its use.

6.7.2. Contingency and degraded mode procedures for RTC operations | p. 68

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comment | *40* | comment by: *GdF*

to select alternate suitably.

Propose:
to select a suitable alternate.

proposed comma:
take other forms, such as

response | Accepted

The text has been updated.

comment | *80*   comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

6.7.2. Contingency and degraded mode procedures for RTC operations, pg 68-69

Rationale: The operational risk for the airspace users lies in the hands with the established redundancy plans and its contingency procedures, this is especially important if the air space user selects a destination and alternate aerodrome that are controlled by the same RTC, this need further clarification in the text, and to underline the importance to have the procedures addressed in AIP. To have other forms to disseminate this rather important information outside the AIP is not acceptable since then the information might not reach all air space users. Of course workshops etc between air space users and ATS Service provider (RTC) are useful and should be encouraged, but they should never be the primary means for the dissemination of this safety important information, and national / local workshops will never address all national and or international airspace users.
Text change:
In the case of operations to several aerodromes from one RTC, appropriate contingency plans for the RTC need to be developed, including, for example, contingency procedures for full RTC failure (see also Sections 5.10 and 6.1.1).

Particular care should be taken about the risk of an RTC becoming a single point of failure for aerodromes which otherwise would be independent, as it could be the case of aerodromes which can be expected to be used by airspace users as destination and alternate aerodromes' for each other. Despite all measures to reduce its likelihood, the event of total unavailability of an RTC should be considered to enable airspace users to select alternate suitably. It is expected that this destination and alternate selection can guarantee the availability of an aerodrome with the expected level of ATS. Therefore all Remote controlled aerodromes should have operational contingency procedures for use by the airspace user in place in case of single or multiple failures at the RTC.

To allow suitable aerodrome selection by airspace users, ATS providers should provide the appropriate information to airspace users in AIP. Chapter 9 indicates which information to publish. This information can also take other forms such as workshops with regular airspace users to present relevant information for selection of destination and alternate(s) aerodrome(s) controlled by the same RTC. But the need to have the procedures in AIP should never be neglected, since AIP address all airspace users.

response	Partially accepted
	The addition to the second paragraph has been accepted; the text has been updated.
	The addition to the third paragraph has not been accepted as it would alter and restrict the meaning of the text.

comment	*207*	comment by: *European Cockpit Association*
	ECA very much welcomes this addition and regards this as essential to be reflected in the regulation or AMC.	

response	Noted

comment	*221*	comment by: *DTA/MCU*

Reference: 6.7.2 Contigency and degraded mode procedures for RTC operations

Initial text: Despite all measures to reduce its likelihood, the event of total unavailability of an RTC should be considered to enable airspace users to select alternate suitably. It is expected that this alternate selection can guarantee the availability of an aerodrome with the expected level of ATS.

To allow suitable selection by airspace users, ATS providers should provide the appropriate information to airspace users. Chapter 9 indicates which information to publish. This information can also take other forms such as workshops with regular airspace users to present relevant information for selection of alternate(s) aerodrome(s).

Proposition: Despite all measures to reduce its likelihood, the event of total unavailability of an RTC should be considered to enable airspace users to select alternate suitably. It is expected that this alternate selection can guarantee the availability of an aerodrome with the expected level of ATS **without unduly negatively impacting air operations (refer also to chapter 8)**.

To allow suitable selection by airspace users, ATS providers should provide the appropriate information to airspace users. Chapter 9 indicates which information to publish. This information can also take other forms such as workshops with regular airspace users to present relevant information for selection of alternate(s) aerodrome(s).

Comment: The coordination with air operators is well explained in Regulation (EU) 2017/373 and recalled in chapter 8. However, as in chapter 8, it is suggested to recall that air operators should be included in the safety study conducted by the ATS provider to make sure that they've been consulted to identify potential hazards, and that they've been properly informed during the change process. See also our comment in chapter 8.

response	Not accepted

A contingency situation will likely negatively impact air operations regardless of what preventive measures are taken.

comment	*240* comment by: *Civil Aviation Authority the Netherlands*

Is it possible that in a flight plan for a flight the destination and the alternate aerodrome are both served by the same remote tower centre? This would lead to problems in case of a disruption of service from the remote tower centre where both aerodromes become unavailable.
Will additional guidance be provided how to deal with such a situation?

response	Noted

At the moment this situation is mentioned in Regulation (EU) 2017/373. EASA is aware of its controversial nature and works on the solution. As this is hard-law level, it is beyond the possibilities of GM.

comment	*288* comment by: *LFV*

Chapter 6.7.2;
The chapter mentions "total unavailability of an RTC" – suggesting that the sole hazard in the functional system being the RTC. It would be more beneficial if this were considered being "total unavailability of ATS". This would in a better way reflect how functional systems are assembled nowadays.

response	Not accepted

The GM addresses remote aerodrome ATS specifically; in this context, the loss of the entire RTC is specific to RTC and other ATS could still be available (e.g. flight information service from a FIC). The total unavailability of ATS in an area (for example, a loss of RTC and ACC at the same time) is not specific to remote aerodrome ATS and is generally addressed under requirements for contingency procedures established in Regulation (EU) 2017/373.

6.8. Remote tower system constituents   p. 69

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comment	*41* comment by: *GdF*

proposed commas and to spice things up removal of a comma:

should be considered, as this may

A generic term meaning variously

to the identified constituents, provided that

response	Accepted

The text has been updated.

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7. Aerodrome-related aspects   p. 72

comment	*42*	comment by: *GdF*

proposed comma:

can be beneficial, particularly during special

response	Accepted

The text has been updated.

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comment	*104*	comment by: *Europe Air Sports*

Section 7 Aerodrome related aspects

Fifth para ("For remote aerodrome ATS, and specifically if the remote tower is located away from the aerodrome, it is particularly important to ensure appropriate coordination....")

EAS fully agrees with this view. It is imperative that both locally and remotely located personnel working with the same aerodrome are coordinated and train together for contingencies and emergencies.

response	Noted

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comment	*127*	comment by: *DTA/MCU*

Reference to: Changes necessary for the implementation should be carried out by the aerodrome operator according to ADR.OR.B.040 of Regulation (EU) No 139/2014 [7].

Comment: ADR.OR.B.040 is only applicable to aerodromes falling under R UE 2018/1139 art 2 1.e) and that are not exempted by the MS. What should be applicable for other aerodromes?

response	Noted

Exempted aerodromes should be treated as local rules stipulate.

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comment	*289*	comment by: *LFV*

Chapter 7;

Changes introduced by the aerodrome operator often tend to also affect the ATS-provider with a following safety assessment. The roles in regards to multi actor and the need for informing one and another regarding changes might be beneficial to develop further.

response	Not accepted
	This is already a part of (EU) 2017/373, and the change requirements are not unique to RTS. Therefore, not added in this material.

7.1.1. Documentation to be provided by the applicant for the initial aerodrome certification   p. 72

comment	*43* comment by: *GdF*
	prposed comma:
	or diversions, including reporting procedures
response	Accepted
	The text has been updated.

comment	*81* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*
	7.1.1. Documentation to be provided by the applicant for the initial aerodrome certification, pg 72
	Documentation to be provided by the applicant for the initial aerodrome certification Rationale: Need for adding requirements to address the contingency procedures in the certification process and since it´s an integral part of an SLA /contract between primarily ATS service provider and aerodrome operator to be able to achieve an equivalent level of operational safety as a conventional tower, it need this additional part to be addressed.
	Add text: - Contingency procedures for technical degradation and operational procedures for airspace users in the event of a single point of failure.
response	Not accepted
	The list is not exhaustive; many other documents could be added.

comment	*128* comment by: *DTA/MCU*
	Reference to: The documentation for the initial certification of the aerodrome should include information regarding the provision of ATM/ANS at the aerodrome
	Comment: Since this paragraph only addresses initial aerodrome certification, guidance related to implementation of Remote tower for an already certified aerodrome which previously had on-site conventional ATS established should be developed because this case is more likely to happen.

response	Not accepted
	The change from conventional ATS to remote aerodrome ATS is considered a change which for aerodromes is handled in accordance with ADR.OR.B.040. This is already specified under Chapter 7 and no additional guidance has been deemed necessary.

7.1.2. Aerodrome manual   p. 73

comment	*44*	comment by: *GdF*
	proposed comma: relevant information, including	
response	Accepted The text has been updated.	

comment	*45*	comment by: *GdF*
	(day- and night-time) propose: (day and night)	
response	Not accepted The original text is considered clearer.	

comment	*82*	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*
	7.1.2. Aerodrome manual, pg 73 Rationale: Need for adding requirements to address the contingency procedures in the Aerodrome Manual since there are a need for appropriate coordination in place between aerodrome operator and RTC (ATS Service provider) to facilitate appropriate parts of contingency procedures, such as communication, RWY, instrument lights, approach aids and MET and RWY information. This should also be a part of an SLA /contract with requirements and measurable specification that can be monitored by both parts between Aerodrome operator and ATS Service provider. *Add text:* *- Contingency procedures for technical degradation and operational procedures for airspace users in the event of a single point of failure at the RTC.*	
response	Accepted The bullet point has been added.	

7.1.3. Local agreement between aerodrome and ATM/ANS providers   p. 74

comment	46	comment by: *GdF*
	propose comma: the operation, including but not	
response	Accepted The text has been updated.	

comment	196	comment by: *AESA*
	The second paragraph starts saying "Once the system is in place and operational, the agreement should also cover all measures relevant to operation including but not limited to […]". Wouldn´t be more appropiate before that moment?	
response	Noted The agreement should be in force before the start of the operation.	

comment	272	comment by: *IATA*
	In terms of NPA (B) 7.1.3. Local agreement between aerodrome and ATM/ANS providers we would add: • The emergency procedures for the loss of communication with the vehicle on the Runway; • The emergency procedures for the evacuation of the aircraft excursed from the Runway	
response	Not accepted These measures are independent of the mode of ATS service.	

comment	290	comment by: *LFV*
	Chapter 7.1.3; Local agreement should also include at least redundant power and the availability of the same during all hours of operation.	
response	Not accepted These measures are independent of the mode of ATS service.	

7.1.4. Equipment placement constraints   p. 74

comment	*47*	comment by: *GdF*
	easily accessible ~~by~~ **to the** general public.	

response	Accepted
	The text has been updated.

comment	*54*	comment by: *GdF*

"...is generally prohibited, but Annex 14, Volume 1, Chapter 9.9, on equipment siting, clearly allows equipment inside the runway safety areas if it is needed for air navigation purposes."

Chapter 9.9 deals with equipment that needs to be within the runway safety area to perform its function, for example light fixtures or slope indicators. Not just any equipment being needed for a general air navigation purpose.
If e.g. a microphone has to be located there to perform its function, it may be located within the safety area. If it can perform its function from outside the safety area, it must be located outside. CS ADR-DSN.J.480 corroborates our understanding AFAIK.
This should be made clear in the text and in our point of view, specifically the first paragraph does not do so. If we misunderstood the text, it would still be an indication that the text is not sufficiently well-structured and written. It seems like different authors were responsible for the different paragraphs and the text was submitted as it is because of time constraints before a satisfactory proposal could be agreed on.

Especially given the possible different interpretations of placement of equipment inside the safety area, a paragraph 7.1.4 "clearly" needs to be added, but probably not this text. We would ask EASA to rework part of the content or phrasing. In our opinion, the paragraph should make clear that equipment should only be placed inside the safety area if it is necessary to perform its function. All other recommendations from 9.9 about objects being frangible etc. should be observed and possibly mentioned.
We support the notion that this point is not exhaustive. Possible real life use cases might help expand it and clear up possible confusion on our side.

response	Noted
	If an item of equipment is needed for air navigation inside the runway strip that means it has to be in the strip to properly fulfil its function. EASA sees no controversy in this statement.

comment	*55*	comment by: *GdF*

"If camera sites are easily accessible by general public (i.e. outside the aerodrome security
area), special care has to be taken during physical protection specification and implementation."

	Rewording proposal: Camera Sites that are easily accessible to the general public (i.e. outside of the aerodrome security area) need to be protected with special care. This has to be taken into consideration when developing the physical protection specification, and during implementation and operation.
response	Accepted The text has been updated.

comment	*66*	comment by: *Saab AB*
	The concept of Remote Aerodrome ATS and the additions of the visual presentation creates more opportunity to create ideal placement of components and thus creating and viewpoints not available to the concept of conventional Aerodrome ATS. The placement of infrastructure close to the maneuvering area, inside the runway strip and obstacle surfaces can provide a significant benefit to ATS at the same time might need a derogation or an exemption managed by the Aerodrome Operator. Any additional guidance including guidance especially targeting Aerodrome Operators and Aerodrome Regulators would be beneficial. At this point, we are not in a position to propose and amendment other that what is already available in 7.1.4 however we would like to underline the importance.	
response	Noted	

comment	*85*	comment by: *LVNL*
	"QUESTION: Is the guidance given in Section 7.1.4 considered sufficient? If not, which aspects should be included and subject to an extended elaboration?": • No, the guidance is limited to areas very close to or in the landing/runway strip. A camera mast is normally located a certain distance from the runway to accommodate proper height and overview, it is more likely that the transitional (not being the inner variant) is limiting. This surface is often the most limiting surface because a remote tower needs to be higher than its conventional predecessor to be able to see the manoeuvring area (and boundaries between ramps and the manoeuvring area). On narrow airport terrains there often is no space left to move further from the runway to accommodate a higher mast • Camera masts are most likely not of the frangible kind. • Aspects on camera mast siting in other obstacle limitation areas should be taken into consideration. Especially where the integral consideration of collision risk and ATM risk is at play. Also: an ATM tower serves a specific task ensuring a safe and orderly flow of traffic. That aspect of this obstacle is not taken into consideration (yet) within the guidance material	
response	Noted The text refers to runway strip **and its corresponding obstacle surfaces**, thus covering all restrictions. According to the Regulation (EU) No 139/2014, if anything is placed in that volume, it shall be frangible. ATM tower placement is outside the scope of the GM.	

comment	*90*	comment by: *Civil Aviation Authority the Netherlands*

In this paragraph the placement of a camere mast is discussed. Placing the camera mast close to the runway is a possibility. The camere mast is defined as CNS equipment and for that reason the camera mast can be placed in the runway safety areas. However, the next paragraph states that the equipment within these zones should be frangible. As far as is know to the CAA-NL, camera masts are of a non-frangible nature.

Annex 14, Volume , Chapter 9.9, on equipment siting, clearly allows equipment inside the runway safety areas if it is needed for air navigation purposes…. hence, cameras or other CNS equipment required for air navigation purposes are allowed inside the runway safety areas as well.

To be clarified: does it mean that any camera support structure shall be frangible or is it also possible to allow a (new) non frangible object or extension of existing non frangible objects above the obstacle surfaces when the object is used for air navigation purposes and when, in the opinion of the appropriate authority, after aeronautical study it is determined that the object or extension would not adversely affect the safety or significantly affect the regularity of operations of aeroplanes. Additional guidance on the issue of frangibility of camera masts would be welcome.

response	Accepted The text has been amended with further references and clarifications.

comment	*129*	comment by: *DTA/MCU*

Reference to: Placing objects inside the runway strip and its corresponding obstacle surfaces is generally prohibited, but Annex 14, Volume 1, Chapter 9.9, on equipment siting, clearly allows equipment inside the runway safety areas if it is needed for air navigation purposes. […] hence, cameras or other CNS equipment required for air navigation purposes are allowed inside the runway safety areas as well.

Comment: We suggest to add a note refering to CS.ADR.T.915 with regard to AD certified under UE regulation to make clear that even though they could be placed inside various obstacle surfaces CNS equipment required for air navigation purposes shall nevertheless respect these requirements.

response	Accepted The reference has been added.

comment	*130*	comment by: *DTA/MCU*

Reference to: The applicable EU regulatory framework on aerodromes (CS ADR-DSN.J.480) also allows objects above the inner approach surface, the inner transitional surface or the balked landing surface, provided that they are frangible and because of their function, they should be located on the strip. Also, GM1 ADR-DSN.B.150 repeats the provisions of Annex 14, permitting placement.

Comment: The reference to the approach surface, the inner transitional surface and the balked landing surface is specific to precision approach. Therefore not all type of runways are considered (ie : what about the case of non-precision approach and CAT I ?). As a consequence, other surfaces should also be considered when OFZ are not applicable.

We suggest to also refer to ICAO Annex 14 vol. I 9.9.5 and 9.9.6 as well as CS.ADR.DSN.T.915 e) and f) in order to cover all type of runways.

response	Partially Accepted Annex 14 Chapter 9.9 is already referenced. CS ADR-DSN.T.915 has been added in reply to comment No 129.

comment	*197*	comment by: *AESA*

It would be useful to clarify and/or extent the last paragraph: "Equipment placement has to be done taking into account applicable safety and security rules and procedures. If camera sites are easily accessible by general public (i.e. outside the aerodrome security area), special care has to be taken during physical protection specification and implementation", specially in order to know which safety and security rules and procedures are referred in this paragraph.

Related to EASA question in part A: "Is the guidance given in Section 7.1.4 considered sufficient? If not, which aspects should be included and subject to an extended elaboration?"

response	Noted See the response to Comment No 55.

7.2.1. Coordination between the aerodrome operator and the ATM/ANS providers in the event of system failure — p. 75

comment	*83*	comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)*

7.2.1. Coordination between the aerodrome operator and the ATM/ANS providers in the event of system failure, pg 75

Rationale: Any redundancy measure and its contingency procedures need good coordination to swiftly being able to mover over the temporary modes of operation that enables the remote aerodrome to still be open to safely wind up any airborne aircraft that have the aerodrome as their planned destination and or alternate aerodrome, or the combination of the two if both destination and alternate aerodrome are served by the same RTC.
Text change:
In the event of failure of any of the facilities, installations and equipment enabling and supporting remote aerodrome ATS, locally or remotely, timely coordination between the aerodrome operator and the ATS provider should take place to identify

	the cause and impact of the failure on the operations, according to the agreed technical and operational contingency procedures between the aerodrome operator and the ATS service provider, and to notify this information via NOTAMs, as necessary.
response	Accepted

The text has been updated. |

7.2.2. Aerodrome safeguarding p. 75

comment	*132*	comment by: *DTA/MCU*
	We suggest to add a note refering to ADR.OPS.B.075 to cover AD certified nder the scope of R UE 2018/1139.	
response	Accepted

The reference has been added. | |

7.2.4. Management of the change to remote aerodrome ATS - aerodrome operator p. 76

comment	*48*	comment by: *GdF*
	accompanied ~~with~~ **by** the updated	
response	Not accepted

Accompanied with is considered more suitable. | |

comment	*49*	comment by: *GdF*
	proposed commas:

Such tasks may include, but are not
(twice) | |
| response | Accepted

The text has been updated. | |

comment	*133*	comment by: *DTA/MCU*
	Reference to:
• tasks that <mark>may</mark> fall under the responsibility of the aerodrome operator but had been performed by the ATS provider based on existing local arrangements (e.g. <mark>~~runway surface condition assessment~~</mark> or apron management service) and which may need to be performed by the aerodrome operator; and	

• tasks which <mark>may</mark> fall under the responsibility of the ATS provider and which are planned to be performed by the aerodrome operator, based on existing or new local arrangements. Such tasks may include but are not be limited to:

- maintenance of facilities, installations and equipment necessary for the remote aerodrome ATS;
- meteorological observations; and
- provision of pyrotechnic signals to aerodrome traffic.

Comment: 1/The GRF concept is applicable since 12th august 2021 therefore Runway surface assessment falls under the responsibility of the aerodrome operator.

2/ Yet AMS requirements are brought by R UE 2020/1234 amending R UE 139/2014, AMS do not fall under aerodrome responsibility a priori. Indeed R UE 2020/1234 indicates that the AMS might fall either under the responsibility of a certified ANSP, a certified aerodrome operator or a third party which should declare its activities. Thus the role and responsabilities might differ from one aerodrome to another. As a consequence we suggest to better express this flexibility in the wording by adding "may".

response	Not accepted
	'May' would bring ambiguity to the text.

7.2.5. Power supply at aerodromes   p. 78

comment	*131*	comment by: *DTA/MCU*
	At the paragraph 7.2.5.1, we suggest to add a fourth item as follows: — When appropriate, arrangements should be in place between ATS and aerodrome operator regarding electrical power supply systems for the remote tower equipments and associated obstacle lighting. Comment: At some aerodromes, secondary electrical power supply might be under the responsibility and the control of the ATS maintenance services. In that case, arrangements should be made between the ATS and the aerodrome operator.	
response	Not accepted Section 7.2.5.1 details only power requirements not provision responsibilities. The latter are described in Section 7.2.4.	

7.2.6. Cameras at aerodromes when apron management services is provided by the ATS unit   p. 78

comment	*269*	comment by: *European Transport Workers Federation - ETF*

How about the use of remote tower operations to provide apron management services independently from ATS service provision?

We believe this would require also a GM in aerodrome regulations

response | Noted

Apron management services are outside the scope of the GM.

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8. Possible impact on airspace users   p. 79

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comment | *50*   comment by: *GdF*

proposed commas and addition:

interactive forms, such

Those measures may include, but are not limited to: requirement to have **an** aerodrome with independent ATS...

response | Accepted

The text has been updated.

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comment | *68*   comment by: *Saab AB*

As these topics of the changes in section 6.4 and 8 are closely related we provide the same comment to all of those amendments.

Recognizing that the need for an transparent approach to change management, and for ATM/ANS providers to provide other stakeholder with insight to the safety assessment and sharing a common view on dependencies, assumptions and risk mitigation is not only required by ATM/ANS.OR.A.045, but also important for the affected stakeholders in order for them to comply with their requirements in turn.

The recommendations goes beyond this point and encourage involvements in the decision, development and implementation phases. This approach creates a set of problems as

the phases referenced are not clearly defined,

airspace users are not a homogenous group, and

this approach does not recognize the role of the Aerodrome Operator as the procuring entity of ATM/ANS. In a competitive market the Aerodrome Operator procure the ATM/ANS providers and in doing so set the boundaries of the ATM/ANS services, on a time limited contract.

We would recommend that the RMT and EASA amend the recommendations and to the extent possible encourage ATM/ANS providers together with Aerodrome Operators to utilize the communications channels already established (besides the consultation process of ATM/ANS.OR.A.075) f.i. IAIP and the Local Runway Safety Team required AMC1 ADR.OR.D.027(b) as a part of the Aerodrome Safety Programme.

response | Noted

See the response to comment No 64.

| comment | 84 | comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)* |

8. Possible impact on airspace users, pg 79

Rationale:
The operational risk with RTC are primarily when an operator selects destination and alternate aerodrome controlled by the same RTC. The importance for the ATS operator to make sure it addresses which aerodrome that are controlled by an RTC and any appropriate contingency procedures in AIP, ref AD 2.23 / 2.22. And that the ATS operator display this adequately on instrument approach charts in AIP. Furthermore, it´s good with consultation and or customer work groups between ATC provider and air space users (air operators). However these groups can not in any way substitute the general requirements in EU 2017/373 in regards to visible AIP:s with appropriate operational contingency procedures displayed in AD. 2.23/2.22
Text change:
8. Possible impact on airspace users
In principle, and as confirmed by recent operational experiences and validation activities, remote aerodrome ATS should not negatively impact airspace users. With reference to ATM/ANS.OR.A.075 of Regulation (EU) 2017/373 [4], complemented by AMC1 ATM/ANS.OR.A.075(a) in Annex III to EASA ED Decision 2017/001/R [10]paragraph 8.1 in Annex I to Regulation (EU) No 1035/201187 [3], an ATS provider is required to 'provide its services in an open and transparent manner'. This would include the introduction and operation of remote aerodrome ATS. The ATS provider should ensure that relevant aeronautical information is included in AIP and other appropriate products and services are required to 'publish the conditions of access to its services and changes thereto (see Chapter 9 below).
Furthermore, the ATS provider is recommended to and establish a consultation process with the users of its services on a regular basis or as needed for specific changes in service provision, either individually or collectively'. Part of this consultation could include the contingency planning for the services provided.

In any case, the ATS provider should analyze any possible impacts on airspace users when conducting the safety assessment and propose appropriate mitigation measures as part of the operations manual. Particular care needs to be taken in the case of ATS provision to several aerodromes from one RTC as well as in case of multiple mode of operation, where the operations at different aerodromes may become interdependent (see also Sections 5.10, 6.5.1 and 6.5.2). The impacts and mitigation measures should be coordinated by the ATS provider and by the aerodrome operator with airspace users as specified in ATM/ANS.OR.A.045 of Regulation (EU) 2017/373 [4] and in GM2 ADR.OR.D.027 of the AMC & GM to Regulation (EU) No 139/2014 [7]respectively.

Airspace users are informed through the aeronautical information products and services — see Chapter 9 , and in other measures necessary or advised in according to Regulation (EU) 2017/373 [4].
Selecting destination and alternate aerodromes remains a responsibility of airspace users. The objective of the ATS provider should be to allow availability of a suitable

level of aerodrome ATS at an alternate. The objective of the ATS provider should allow availability suitable level of ATS as a conventional aerodrome regardless if the remote controlled aerodrome serves as destination or alternate aerodrome controlled by the same RTC. ATS providers are recommended additionally to the general requirements to address it in AIP, to disseminate information in other and more interactive forms such as regular workshops with airspace users to present amongst other things relevant information for selection of destination and alternate(s) aerodrome(s).

As remote tower operations from an RTC generate interdependencies between the ATS provision to several aerodromes, Member States and competent authorities are advised to assess the acceptability of the level of interdependence generated and take measures as deemed suitable. Those measures may include but are not limited to: requirement to have aerodrome with independent ATS provision within a certain distance, action on requirements for hours of service.

response	Not accepted
	The suggested extension is too restrictive.
	See also the response to comment No 240.

comment	*92*	comment by: *Civil Aviation Authority the Netherlands*
	Question: is it possible to provide some more guidance on circumstances and operational hazards for which the level of interdependency needs extra measures to be taken by the Member states and competent authorities.	
response	Noted	
	Circumstances and operational hazards shall be determined during the local safety assessment. Giving examples may lead to uncovered hazards if the hazard list in the GM is checked and no further effort is made.	

Comment	*105*	comment by: *Europe Air Sports*
	8. Possible impact on airspace users Page 79 Please consider making part of the visual and audio feed recorded at each remote aerodrome available to General Aviation operators in order to provide them a good picture of the local weather as well as the traffic situation. This may greatly aid the decision making and flight planning for GA pilots. "Shall I go flying today?" It can help both for local flights, training flights and cross country flights, even between different remotely controlled aerodromes. The feed 103houldd preferably be available also outside ATS operating hours. Please keep in mind that already now some aerodromes offer live webcams for this purpose.	
Response	Noted	

This suggestion goes beyond the scope of the GM. Providing a webcam service is a local operational and financial decision.

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comment	*106*	comment by: *Europe Air Sports*

8. Possible impact on airspace users
Page 79

A negative impact could be the possible restriction of an aerodrome's hours of operation to only hours of ATS operations. For example keeping the aerodrome open only at times of scheduled traffic, e.g. for two morning movements, two around noon, two in the evening. Such a solution is definitely not acceptable.

In order to ensure that the implementation of remote aerodrome ATS does not negatively impact airspace users, the aerodrome operator shall establish dynamic airspace reconfiguration solutions if ATS operations are not provided continuously, allowing traffic not requiring ATS to operate at the aerodrome regardless of whether ATS is provided.

Remote ATS should not be implemented if it leads to a reduction in simultaneous movements at the airport during ATS operating hours compared to pre-Remote ATS levels.

Rationale: ATC ops hours must not automatically be linked with aerodrome ops hours. Many General and Sports aviation flights do not require ATC, and flights may even be operated according to IFR without ATC.

response	Noted

See the response to Comment No 95.

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comment	*224*	comment by: *DTA/MCU*

Reference: 8 Possible impact on airspace users

Initial text: The impacts and mitigation measures should be coordinated by the ATS provider and by the aerodrome operator with airspace users as specified in ATM/ANS.OR.A.045 of Regulation (EU) 2017/373 [4] and in GM2 ADR.OR.D.027 of the AMC & GM to Regulation (EU) No 139/2014 [7]respectively.

Airspace users are informed through the aeronautical information products and services — see Chapter 9, and in other measures necessary or advised in according to Regulation (EU) 2017/373 [4]. Selecting alternate aerodromes remains a responsibility of airspace users. The objective of the ATS provider should be to allow availability of a suitable level of aerodrome ATS at an alternate.

Proposition: At the end of the last paragraph quoted in our comment (3rd paragraph of chapter 8):

"The objective of the ATS provider should be to allow availability of a suitable level of aerodrome ATS at an alternate **without unduly negatively impacting air operations**."

Comment: Similar comment as in section 6.7.2. When referring to negative impacts to air operators, see our response to your request of feedback from stakeholders regarding the technical architecture, interdependencies and redundancy aspects (NPA 2022-02(A), section 2.3, 'EASA is evaluating a revision of the affected rules […] to address the issue and ensure the necessary clarity, legal certainty and assurance of the safety level).
If relevant, it may also be worthwhile to detail the potential negative impact on air operators at some point in the guidance document.

response	Not accepted
	See the response to comment No 221.

comment	270 comment by: *European Transport Workers Federation - ETF*
	"…an ATS provider is required to 'provide its services in an open and transparent manner'. This would include the introduction and operation of remote aerodrome ATS." The continuation of this statement should, for ETF, be the goal of the same level of service when implementing remote aerodrome ATS as from a conventional tower. By "level of service", ETF means inter alia the same opening hours of the service for the same type of users than it was before the implementation of remote aerodrome ATS. See comment 254 also. The introduction of remote aerodrome ATS should not justify a change of the availability of aerodrome ATS. Notably the hours of service should remain the same unless agreed by the competent authority.
response	Noted
	See the response to Comment No 95.

comment	271 comment by: *European Transport Workers Federation - ETF*
	"Furthermore, the ATS provider is recommended to and establish a consultation process with the users of its services…" The deleted version was a requirement: "is required to establish a consultation process". ETF asks the level of requirement to be maintained as it was before. Proposed rephrase : "Furthermore, the ATS provider should establish a consultation process…"
response	Accepted

It should be noted that this requirement stems from (EU) 2017/373 ATM/ANS.OR.A.075. The GM itself is not binding; it just mirrors the text from the implementing rule.

comment	291	comment by: *LFV*

Chapter 8;

In regards to interdependencies it has already in this document been advised to remove measurers, this applies also to this chapter (last sentence). It should be noted that in common cases planning of alternates are not made for obvious reasons, for example geographical distance or airport physics – it might very well be a non-existing problem. It could also be the case that a RTC needs to investigate how the alternate planning is carried out in practice just to learn the size of a possible problem.

2nd paragraph, the text 'ATS provision to several aerodromes from one RTC as well as in case of' is incorrectly marked as removed (in draft Issue 3 vs Issue 2), when in fact it was never existing in Issue 2. The text provides value and good guidance and should remain in Issue 3 (the text is a result of the work in the RMG with draft Issue 3).

Last paragraph, text starting with 'As remote tower operations from an RTC generate…' is a duplication of the last paragraph of Ch 5.10 (also new text) – why the same text in two places of the document?

Comment on the text 'Member States and competent authorities are advised to assess the acceptability of the level of interdependencies…' – Member States are not listed as stakeholders in Ch 1.1.

response	Partially Accepted

The second paragraph of the comment is accepted, and the text has been updated. The last paragraph has not been deleted as it – although a repetition – emphasises an important issue.

9. Aeronautical information products and services	p. 80

comment	52	comment by: *GdF*

proposed commas:

remotely provided, with reference to the information listed above.

To facilitate this, the provisions of

response	Accepted

The text has been updated.

comment	62	comment by: *GdF*

Explicitly agree with the addition of this chapter.

response	Noted

comment	69	comment by: *Saab AB*

The amended text tries to address the potential issue of interdependencies between aerodromes, as this is provides to impact the airspace users ability to plan alternate aerodromes.

The critical metric in this context is the availability of an ATS unit and aerodrome when expected by the airspace user. In the short perspective we believe that it is essential that the ATM/ANS provider can design the systems to a specified robustness and that a design with high availability (superseding that of a conventional tower) can be rewarded for that effort and investment. As the concept of Remote Aerodrome ATS can be implemented in several ways with different levels of target availability.

In a longer perspective the issue at hand is not a Remote Aerodrome ATS specific issue as there are several different reasons of interdependencies between aerodromes that not necessarily is obvious to the airspace user. f.i. shared infrastructure, adjacent or even overlapping airspaces or specific operating conditions at the aerodrome.

Based on the comments above we would recommend the RMT and EASA to address these topics, not only towards the ATM/ANS provider providing Remote Aerodrome ATS but rather ATM/ANS provides in general.

response	Noted
	See the response to comment No 240.

comment	76	comment by: *Avinor*

Comment to 9. Aeronautical information products and services:

Comment 1. Bullet point no. 4 - We suggest that this point is not included as information to be published under AD 2.23, but moved to a separate paragraph giving guidance of elements to be published under AD 2.22.

Justification: It is not clear that the information is to be published under AD 2.22 the way it is included in the proposal.

Comment 2. Bullet point no. 5 - We suggest the following wording (i.e. delete the suggested part regarding aerodromes not suitable for diversion):

- *description of the interdependencies of service availability [.....] if deemed applicable.*

Justification: It is for the airspace users to determine wether one aerodrome is suitable for diversion from another aerodrome, not for the ANSP. Therefore the guidance should be restricted to the area of responsibility for the ANSP. However, the ANSP should be guided as to publish all relevant information necessary for the airspace users to be able to make their assessment on the suitability for diversion.

Comment 3. We suggest to delete the paragraph recommending the inclusion of remotely provided ATS in all relevant approach charts.

Justification: As the related guidance on how to use the provisions of ICAO Annex 4 in this matter is not really giving any helpful guidance, it would be better to delete this paragraph all together to avoid confusion.

response

Noted

See the response to comment No 240.

comment | *86* | comment by: *LVNL*

We acknowledge the need for remote ATS provision indication on AIP charts. However, for a remote ATS tower and/or signalling lamp symbol, we would prefer if you gave us an example so that not each AISP uses different symbols and so that they may become universally recognisable.

response

Not accepted

The suggested solution is beyond GM level.

comment | *88* | comment by: *skyguide Compliance Management*

Furthermore, indication that ATS is remotely provided should be included in all approach charts of aerodromes where ATS is remotely provided with reference to the information listed above. To facilitate this the provisions of ICAO Annex 4 apply. Annex 4 does not foresee the inclusion of similar information in the approach charts, but it does allow the inclusion of additional symbols on the chart: 'Symbols used shall conform to those shown in Appendix 2 — ICAO Chart Symbols, except that where it is desired to show on an aeronautical chart special features or items of importance to civil aviation for which no ICAO symbol is at present provided, any appropriate symbol may be chosen for this purpose, provided that it does not cause confusion with any existing ICAO chart symbol or impair the legibility of the chart.' Also in 2.3.3 of Annex 4 it is stipulated that 'A legend to the symbols and abbreviations used shall be provided. The legend shall be on the face or reverse of each chart except that, where it is impracticable for reasons of space, a legend may be published separately.' Another solution could be to use an abbreviation as they are allowed to be used — see '2.9.1 Abbreviations shall be used on aeronautical charts whenever they are appropriate.'

Comment : Here a specific proposal is expected to ensure a harmonised publication in all countries.

response

Not accepted

See the response to comment No 86.

comment | *93* | comment by: *Civil Aviation Authority the Netherlands*

"in Appendix 2 — ICAO Chart Symbols, except that where it is desired to show on an aeronautical chart special features or items of importance to civil aviation for which no ICAO symbol is at present provided, any appropriate symbol may be chosen for this purpose, provided that it does not cause confusion with any existing ICAO chart symbol or impair the legibility of the chart.' Also in 2.3.3 of Annex 4 it is stipulated that 'A legend to the symbols and abbreviations used shall be provided."

Question: why not proposing a uniform EU indication or symbol for airports where ATS is remotely provided

response	Not accepted
	See the response to Comment No 86.

comment	*107*	comment by: *Europe Air Sports*
	9. Aeronautical information products and service Page 80 Second last para on this page: Question: What other official/officially certified sources are to be considered "appropriate. Please specify! Rationale: All information provided must be reliable at any time as flight safety depends on it.	

response	Accepted
	The text has been updated to indicate that other sources may be used as appropriate. Appropriate, in this context, means that they should be used as appropriate, i.e. correctly.

comment	*136*	comment by: *HungaroControl*
	In addition to the information given in Section AD 2.23 of the AIP that remote aerodrome ATS is provided, we suggest to add information on the mode of remote ATS operation as well: • indication the mode of remote aerodrome ATS operation e.g. single, contingency, multiple;	

response	Not accepted
	The mode of operation does not change the service provided to users, and the mode of operation may change at short notice (especially between single and multiple). Therefore, providing an indication of this in the AIP (which is a static source of information) is not considered appropriate.

comment	*227*	comment by: *ENAIRE*

List of information related to remote aerodrome ATS proposed to include in AIP AD2.23 seems complete. Duplication of information in approach charts seems redundant. An alternative proposal could be to include the reference in ADC, VAC charts. We therefore propose to change the following text <<Furthermore, indication that ATS is remotely provided should be included in ADC and VAC charts of aerodromes where ATS is remotely provided with reference to the information listed above>>.

response	Not accepted This proposal goes beyond the scope of the GM.

10.3. Qualification and training of ATSEP   p. 82

comment	*198* comment by: *AESA*
	1. In relation with the qualification streams, is there an specific domain to consider or it is referred to combine all of them? (Communication, navigation, surveillance, data processing, system monitoring and control or shared). 2. Regarding to "[...] the unique set of competencies required for ATSEP operating and maintaining remote aerodrome ATS equipment", is there any guidance material where this unique set of competencies, for remote aerodrome ATS equipment, is defined? It would be useful to clarify the last sentence in the second paragraph of this section: "Remote aerodrome ATS operators are advised to consider combining qualification streams and any additional needed knowledge or competence based on the unique set of competencies required for ATSEP operating and maintaining remote aerodrome ATS equipment".
response	Noted As there is no stream defined specifically for ATSEP involved in remote aerodrome ATS, the relevant competencies and the stream(s) corresponding to them should be determined applying a case-by-case approach based on the particular technical set-up of the RTC at hand.

10.2. Qualification and training of AFISOs   p. 82

comment	*249* comment by: *German NSA (BAF)*
	There is experience from AT/T meetings, already done by many other states.
response	Noted

10. Qualification , and training and licensing considerations   p. 82

comment	*292*	comment by: *LFV*

Chapter 10, last sentence;

Editorial: The new sentence 'For considerations on multiple endorsements, see Section 4.4.2' should instead be placed under Ch 10.1 (and perhaps also under 10.2)?

response	Not accepted

As it might be relevant for ATCOs and AFISOs as well, placing it in in the general part of the chapter is considered the best option.

11.2. EASA ED Decisions /Opinions p. 84

comment	*135*	comment by: *DTA/MCU*

Reference to the last published version of CS ADR.DSN **[12]** Executive Director Decision <u>ED Decision 2022/006/R</u> *of the Executive Director of the European Aviation Safety Agency of 25 February 2022 adopting Certification Specifications and Guidance Material for Aerodromes Design 'CS-ADR-DSN - Issue 6'*)

response	Accepted

The reference has been updated.

11.3. ICAO provisions/publications p. 85

comment	*53*	comment by: *GdF*

Referencing to old versions of ICAO documents makes it very hard to actually read up on them. Especially, because newer versions of the same document are referenced within the document itself (if I remember correctly thought, there is a reference to Doc 4444 AMD9 even though it is no longer up-to-date).

Request to either update the references or change them to references to up-to-date EASA documents throughout the document.

We could help, if needed.

response	Accepted

The new GM has been updated to refer to the applicable EU regulatory material (e.g. PART-ATS of Regulation (EU) 2017/373 and related AMC & GM in lieu of ICAO Documents which have been transposed under the EU regulatory framework). The list of reference documents has also been updated to reflect the latest published versions.

comment	*134*	comment by: *DTA/MCU*

	Reference to the last published version of Annex 14 vol I **: [17]** ICAO Annex 14 'Aerodromes – Volume I, Aerodrome Design and Operations', eighth Edition, July 2018
response	Accepted See the response to comment No 53.

12.1. Appendix 1: Checklist for the implementation of remote aerodrome ATS   p. 88

comment	*108*	comment by: *Europe Air Sports*
	12. Appendices 12.1. Appendix 1 Checklist… Page 88 and 89 The numbering format is not uniform. In the text part the Agency writes e.g. 6.3.3 Social aspects or 5.12. Working environment, here, however, 6.33, 5.12 respectively, without a final dot (or point) is presented. Rationale: This may be "peanuts", but for consistency reasons an identical layout throughout the document is helpful, it simplifies comprehension.	
response	Noted The text has been reviewed and consistency has been ensured throughout the documents of the resulting ED Decision.	

comment	*199*	comment by: *AESA*
	The new references introduced have some typos. For example: in page 88, in the second to last bullet, the new reference "6.33" has no sense. Is it supposed to be 6.3.3, because the sentence between brackets is referred only to the "working environment", or only 6.3, in order to call to "Human factors assessment" (maybe the intended meaning)?; in the last dash, the new reference "6.66" has no sense. It should be "6.6"; …	
response	Noted See the response to comment No 108.	

12.2. Appendix 2: List of operational hazards for ATC services   p. 90

comment	*94*	comment by: *FOCA Switzerland*
	The experts of the Federal Office of Civil Aviation (FOCA) in Switzerland suggest adapting the Table 2 to list the harmful effects in the table. Indeed According to EU-Regulation 2017/373 the consequences of the change should be expressed in terms of the harmful effects ("potential conflict" is not harmful)	

Current table : "ID / Description / Operational effects"

Proposal: "ID / Description of the operational hazard / harmful effect"

response	Not accepted
	The table is a duplicate of a table from a different document. Changing it would create unnecessary discrepancies between the GM and the original.

comment	*109*	comment by: *Europe Air Sports*
	Comment to 12.2 as well as 12.3:	
	General remark covering both lists: We propose to combine both lists. This can easily be done by adding the "AFIS" column behind "ATC" column. The "Description" and the "Operational effects" column may be maintained.	
	Rationale: By combining both lists a better perception of possible hazards may be gained. With all respect to the everyone working in these areas, in our view "ATS" and "AFIS" are close relatives. For this reason alone the addition to a "Operational effects" column to the "AFIS" list, if kept as a separate list is justified.	
response	Not accepted	
	See the response to comment No 94.	

12.3. Appendix 3: List of operational hazards for AFIS   p. 93

comment	*110*	comment by: *Europe Air Sports*
	Please see our comment to 12.2 which covers also 12.3.	
response	Not accepted	
	See the response to comment No 94.	

12.4. Appendix 4: SESAR division of basic and advanced features   p. 95

comment	*166*	comment by: *AESA*
	Error reference not found.	
response	Noted	
	References will be corrected for the final document.	

comment	*230*	comment by: *ENAIRE*

In page 95 there is a typo error <<SESAR validations ([26], Error! Reference source not found., [30], [33]), has been made and based on that>>.

Moreover, the list of technical enablers on section 3.5 does not match the list of basic features on Appendix 4. For the sake of completeness, consider include at least references to "Signalling lamp remotely controlled" as included in section 3.5.

In third place, the list of technical enablers on section 3.5 does not match the list of advanced features on Appendix 4. For the sake of completeness, consider include reference to FOD detection, Aerodrome sound reproduction and additional cameras as included in section 3.5. As such <<Advanced features(…) [...] System support to help the ATCO/AFISO detect smaller foreign object debris (FOD), highlighting the existence of such small objects in the visual presentation; Aerodrome sound reproduction; Additional visual 'hot spot/gap filler' cameras>>.

Lastly, the list of binocular-functionalities on section 5.2.7.2 does not match the list of advanced features on Appendix 4. For the sake of completeness, consider include reference to binocular-functionalities as included in 5.2.7.2, as such <<Advanced features(…) [...] predefined and user-definable positions predefined and user-definable automatic scanning patterns>>.

response	Not accepted
	See the response to comment No 94.

12.5. Appendix 5: SESAR baseline 'operational visual performance requirements'	p. 96

comment	*70*	comment by: *Saab AB*

We fail to see the benefits in adding the SESAR baseline 'operational visual performance requirements' derived from the final SESAR 1 OSED (OSED for Remote Provision of ATS to Aerodromes, SESAR JU Deliverable D94). We believe that rather than add guidance the addition of the SESAR baseline, work that to some degree have been superseded, creates a confusion in relation to EUROCAE ED-240A Change 1.

When the SESAR 1 specified operational visual performance, there was no available standards and requirements available.
Therefore this was an attempt to have a few representative visual requirements regarding object size and distance. This approach has been changed in the EUROCAE ED-240A Change 1, which addresses the local airport visual operations.
Based on the comment above we recommend replacing this appendix with a reference to the ED-240A Change 1 document.

response	Accepted
	The table has been removed.

comment	148	comment by: *IFATCA*

REQ-06.09.03-OSED-VQ03.1220

"ATCO/AFISO should be able to visually detect an aircraft of type A320, ATR72 or similar size on 4NM final…"

What was the reasoning going from a shall statement at 2NM to a should statement at 4NM. Detect as this document describes is when the observer first sees something. These large aircraft travel faster than 2NM every minute and does not give the ATCO/AFISO much time to recognise the aircraft and manage the situation.

response	Noted

See the response to comment No 70.

comment	149	comment by: *IFATCA*

Whole Page about Visual Requirement (99)

"ATCO/AFISO should be able to visually judge the position of a light aircraft (C172/P28A) in the traffic circuit…"

The rationale does not make sense. While some airports may have obstructed views, this happened over time. There are citing requirements initially for towers to be free of obstructions etc. The remote tower service should not be implemented without being able to see a light aircraft in a normal traffic circuit. This could be defined by a reasonable distance that is quantifiable from the camera mast and tested. The rationale that this requirement would disqualify existing towers is not valid as this document is specifically for Remote Towers and not traditional towers.

response	Noted

See the response to comment No 70.

comment	167	comment by: *AESA*

Error reference not found (page 105).

response	Noted

See the response to comment No 70.

comment	231	comment by: *ENAIRE*

As stated in Section 5.2 (page 28), the list of operational visual performance requirements included in the appendix were derived from the validation scenarios defined in SESAR and are included only as an example. It would be useful to include a likewise clarification on the appendix. We suggest to add the text **highlighted** <<This Appendix contains a set of baseline 'operational visual performance

requirements' derived from the final SESAR 191 OSED [24], Chapter 6.3.4.3 'Visualisation – Quality'. **They can be seen as example requirements and may be used by an ATS provider/implementer as a starting point when defining their own local operational visual requirements, tailored to the specific operational needs and the specific operational context of the particular implementation**>>.

response	Noted
	See the response to comment No 70.

12.6. Appendix 5 6 : List of acronyms	**p. 107**

comment	*111* comment by: *Europe Air Sports*
	12.6. Appendix 6 Page 107 and 108
	The list is not complete: For example, "ACFT" for "aircraft" is used several times in Appendix 5. There may be others…
	We also think it is not a good idea not to use capital letters when one proposes the full name of e.g. the "AIP", short form of "Aeronautical Information Publication". This is a "standing term" exactly as is "EASA". "CFIT" for "controlled flight into terrain" may be different The list is somewhat inconsistent in this respect.
response	Noted